2020-2021 SULFATE SAMPLING EFFORT
for
BIRCH LAKE (69-0003-00)

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Northeastern Minnesotans for Wilderness

June 28, 2021

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1 Executive Summary

Northeastern Minnesotans for Wilderness (NMW) is a 501(c)(3) nonprofit environmental organization founded and incorporated in Minnesota more than 25 years ago by residents in and around Ely, Minnesota and the Boundary Waters Canoe Area Wilderness region. NMW has collected sulfate data from 20 sites in Birch Lake and its tributaries in 2020 and 2021. NMW's sampling, sample handling, and QA/QC methods have followed the MPCA's and EPA's direction for data collection, as instructed by a retired MPCA employee whose agency responsibilities covered water quality monitoring, sample collection and training.

The results of NMW sampling show that sulfate concentrations in the western portion of Birch Lake, including Dunka Bay and Bob Bay, were greater than 10 mg/L. In several sites near to the north and northeast of Bob Bay, sulfate concentrations range from well above to just below 10 mg/L. Sites in the eastern third of Birch Lake show sulfate concentrations generally range from 5 to 8 mg/L.

2 General Information

2.1 Credentials & Training

Lisa Pugh is the monitoring coordinator and data manager for NMW's sulfate data collection project. Lisa has a Bachelor of Science degree in Fisheries, Wildlife, and Conservation Biology from the University of Minnesota. Lisa has 3 years of experience in water quality sampling on Birch Lake. On March 2, 2020, Lisa attended and was certified through the 17th Annual Red River Basin Water Quality Monitoring Training at the University of Minnesota in Crookston. The training was held by the International Water Institute, Red River Watershed Management Board, Minnesota Pollution Control Agency, and RMB Labs. The training and certification included MPCA surface water monitoring Standard Operating Procedures; data gathering and submittal tools; field and laboratory quality control; YSI sonde set-up, calibration, operation, and data collection; as well as field procedures and equipment including sample collection, Van Dorn use, stage measurements, Secchi tube use, Turbidimeter use, field sheet use, and photo documentation.

Lisa was field-trained in sample collection and handling as well as field procedures by subject matter expert Dr. Joe Magner[1] on May 11th and 12th, 2020. Lisa Pugh, Rajan Singh and Noah Greer were trained in sample collection, handling, and field procedures by Dr. U. Singh[2] on August 12th and 13th, 2020. Lisa was trained in sonde maintenance and calibration as well as QA/QC procedures by Bruce Paakh[3] in a series of phone and video calls in May, June, and July 2020. Lisa Pugh trained Levi Lexvold on May 11th, 2021 and Hunter Strubhart on June 15th, 2021 in sample collection and field procedures.[4]

[1] Joe Magner, PhD, is a licensed professional hydrologist (WI), a licensed professional soil scientist (MN) and an American Institute of Hydrology registered professional hydrogeologist. He received degrees from the University of Wisconsin-River Falls and the University of Minnesota and has served as an environmental scientist and educator in varying roles for 42 years; primarily with the MN Pollution Control Agency but also advising US federal and local governments, and officials in China, India, Azerbaijan, and South Africa. Dr. Magner is currently a research professor in the Department of Bioproducts & and Biosystems Engineering at the University of Minnesota. He teaches classes and advises students in field methods in hydrology and water quality

[2] U. Singh, PhD, PE, has a Master of Engineering, Agricultural Land and Water Development Program with special emphasis on Water Resources Planning and Management and Irrigation and Drainage Engineering, from the Asian Institute of Technology, Bangkok, Thailand; and an MS and PhD in Civil and Environmental Engineering from Texas Tech University, Lubbock, Texas

[3] Bruce Paakh is a retired MPCA Hydrologist and Liminologist with 34 years of experience in the field of water quality. He was the Red River Basin Monitoring Coordinator with a strong focus on data quality/integrity. Bruce was responsible for designing and implementing numerous monitoring-related programs including basin-wide load monitoring in the Red River Basin, citizen-collected lake productivity data monitoring in MN in over 1000 lakes, and the Red River Basin Annual Monitoring Training Program. Bruce co-authored the MPCA Volunteer Surface Water Monitoring Guide

[4] The 08-13-2020 sampling event occurred under the direction and training of Dr. Singh and all subsequent sample collection was handled directly by Lisa Pugh with Levi Lexvold or Hunter Strubhart assisting in motor boat operation, deployment of Van Dorn and Integrated Sampler, and reading sonde measurements.

2.2 Purpose

In 2020, NMW developed a water quality monitoring plan for the general purpose of documenting the environmental conditions on and near the project site for the Twin Metals Minnesota (TMM) proposed sulfide-ore copper mine south of Ely Minnesota. NMW began collecting additional samples on Birch Lake in May, 2021 in an 11-mile portion of Birch Lake, particularly in the south and western areas of the lake, where publicly available sulfate data are relatively limited, to determine water quality conditions with respect to sulfate.

2.3 NMW Data Collection

Sulfate data was collected in 2020 from a total of three sites on Birch Lake over one sample day. Sulfate data was collected in 2021 at a total of 20 sites on Birch Lake over five sample days. The sample locations range from the west end of the Birch Lake, to in and around Dunka Bay, and east and northward in an approximately 11-mile span of Birch Lake. See Figure 1.

Field sampling for sulfate on Birch Lake occurred on 08-13-2020, 05-11-2021, 06-01-2021, 06-02-2021, 06-07-2021, and 06-15-2021. Water samples were collected in accordance with EPA Surface Water Sampling Procedures, MPCA Volunteer Surface Monitoring Guide Procedures, and RMB Environmental Laboratories, Inc. (RMBEL) online training videos for Integrated Sampler use and maintenance.[5,6,7] Water samples were hand delivered to an accredited laboratory following proper protocols and chain of custody procedures. See sections 2.3.2 and 2.3.3 below.

At each lake site, field measurements were recorded for water temperature, specific conductance, dissolved oxygen, and pH using a YSI 600XL sonde. Sonde readings were recorded at the surface of each site on sample dates 08-13-2020 and 5-11-2021. On sample dates 06-01-2021, 06-2-2021, 06-07-2021, and 06-15-2021, sonde readings were recorded at 1-meter intervals from the lake surface to the lake bottom.[8]

Water samples for lab analysis were collected using the grab sample method,[9] a 2-meter Integrated Sampler (IS),[10] or a WaterMark Vertical Water Sampler (Van Dorn-style discrete depth sampler)[11] depending on the depth of the sample site. On sample dates 06-01-2021, 06-02-

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[5] EPA. December 16, 2016. Science and Ecosystem Support Division Operating Procedure: Surface Water Sampling https://www.epa.gov/sites/production/files/2017-07/documents/surface_water_sampling201_af.r4.pdf (EPA, 2016)

[6] MPCA. 2003. Volunteer Surface Water Monitoring Guide. https://www.pca.state.mn.us/sites/default/files/wq-s1-15.pdf

[7] RMBEL. Lake Monitoring Training Videos: https://www.rmbel.info/training/videos/

[8] See attached datasheet for sonde profile readings under tab labeled "Sonde Profile Data"

[9] EPA, 2016. P. 11. "A sample may be collected directly into the sample container when the surface water source is accessible by wading or other means. The sampler should face upstream if there is a current and collect the sample without disturbing the bottom sediment."

[10] A 2-meter Integrated Sampler enables the sampler to collect an integrated sample of the top 2 meters of the water column. It is simply a 2-meter pvc pipe with a rubber stopper on one end and a valve on the other.

[11] EPA, 2016. P. 14. "When discrete samples are desired from a specific depth, and the parameters to be measured do not require a Teflon-coated sampler, a standard Kemmerer or Van Dorn sampler may be used. The Kemmerer sampler is a brass cylinder with rubber stoppers that leave the ends of the sampler open while being lowered in a vertical position, thus allowing free passage of water through the cylinder. The Van Dorn sampler is plastic and is lowered in a horizontal position. In each case, a messenger is sent down a rope when the sampler is at the designated

2021, and 06-07-2021, samples were collected at varying depths depending on the total depth of the lake site. Where sites were less than 2m deep, one sample was collected using the Van Dorn. Where sites were between 2m-4m deep, two samples were collected, one using the IS at the lake surface, and one using the Van Dorn within 1m of the lake bottom. Where sites were deeper than 4m, a third sample was collected at a mid-point in the water column. Naming conventions for samples collected at varying depths at one lake site are as follows: lake site number followed by the letter "S", "M", or "D" indicating a sample taken at the surface (0-2m integrated or grab sample), mid-column, or deep (within 1m of lake bottom) respectively. See Table 3 for the following example. On 6-1-21, water samples were collected at site 204 at three depths: 204-S was sampled at 0-2m using an IS; 204-M was sampled at 4m using a Van Dorn; and 204-D was sampled at 8m using a Van Dorn.

2.3.1 Lake Site Selection

Lake sites 202, 203, 503, 502, 204, 501, and 504 are MPCA surface water monitoring stations. These sites were selected for sampling as representative sites of Birch Lake water quality. These sites are located over deeper water and away from stream inlets, aquatic plant beds, islands, sand bars and other areas that can have localized water quality that fails to represent the main lake basin water quality. See Figure 2.

Lake sites 303, S009-182, 301, 304, and 302 are also MPCA surface water monitoring stations. These sites were selected closer to stream inlets in order to observe the influence of Birch Lake tributaries on Birch Lake. See Figure 3.

Lake sites BL-001, BL-002, BL-003, BL-004, BL-005, and BL-006 were established by NMW in 2021 to augment MPCA-established sites. These sites were selected in locations between MPCA sites where bathymetric maps show a depth of greater than 15 feet.[12] See Figure 4.

Lake site SNOK-DS was established by NMW in 2020 in a bay of Birch Lake near the inlet of South Nokomis Creek. See Figure 5.

Lake sites BB-001, BB-002, and BB-003 were established by NMW in 2021 to augment publicly-available data from MPCA station, 69-0003-00-301, which is located in Bob Bay of Birch Lake, and to inform an understanding of the influence of Unnamed Creek, which drains to the head of Bob Bay, on water quality in the bay and Birch Lake.[13] See Figure 7.

2.3.2 Laboratory Information

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depth, to cause the stoppers to close the cylinder, which is then raised. Water is removed through a valve to fill respective sample containers." Note that the WaterMark Vertical Water Sampler functions vertically, similar to the Kemmerer sampler, but is constructed of materials similar to the Van Dorn sampler.

[12] DNR Recreation Compass https://www.dnr.state.mn.us/maps/compass/index.html

[13] MPCA-posted data for station 69-0003-00-301 show it to have been visited once, on 8-14-2019 when sulfate levels were documented to be 19.1mg/L.For comparison, NMW-collected samples demonstrated the following sulfate levels at the same site: 28.3 mg/L on 6-7-21; 23 mg/L on 6-1-21; and 42 mg/L on 5-11-21 with a field replicate sample testing at 41.8 mg/L.

Water samples were analyzed by RMBEL located at 1111 7th Avenue E in Hibbing, Minnesota. RMBEL is certified by the Minnesota Department of Health under State Laboratory ID: 027-137-480.[14] RMBEL is accredited in sulfate analysis using EPA Method 300.0 Ion Chromatography.[15,16]

2.3.3 Sample Handling and Preservation Requirements

Upon collection, samples were stored in a cooler with ice packs and then delivered to RMBEL in a cooler packed in loose ice with sample temperatures remaining at or below 4 degrees Celsius per EPA Method 300.0 requirements. Sulfate samples require no chemical preservation. All samples were documented on RMBEL-provided Chain of Custody Records[17] and remained in the custody of Lisa Pugh during each sampling event. The sample hold time for sulfate analysis is 28 days. Samples were stored in a secured location at the appropriate temperature overnight before transport to the laboratory each morning following a sampling event. Samples collected on 08-13-2020 and 06-15-2021 were hand delivered to RMBEL in Hibbing, MN by sample custodian Rajan Singh, following the chain of custody procedures. All other samples were hand delivered to RMBEL by Lisa Pugh.

2.3.4 Quality Control

Bottle blanks (BB) were collected at a rate of one BB per sampling day. Equipment blanks (EB) were collected at a rate of one EB per piece of sampling equipment per day. Field duplicates (FD) were collected at a rate of one FD per ten sample sites per day. The sampling equipment (IS and Van Dorn) were triple-rinsed at each site prior to sample collection. On each field sampling day, the YSI sonde was calibrated prior to use in the field and a calibration check was performed following the final sample of each day. The dissolved oxygen probe membrane was changed once every 30 days during the sampling season.

3 Results Summary

3.1 Results Summary Overview

The results of NMW sampling show that sulfate concentrations in the western portion of Birch Lake, including Dunka Bay and Bob Bay, were greater than 10 mg/L. In several sites near to the north and northeast of Bob Bay, sulfate concentrations range from well above to just below 10 mg/L. Sites in the eastern third of Birch Lake show sulfate concentrations generally range from 5

[14] RMBEL Lab Certification https://www.rmbel.info/wp-content/uploads/2021/03/2021-HB-2-certificate-03292021.pdf
[15] RMBEL Scope of Certification https://www.rmbel.info/wp-content/uploads/2021/03/2021-HB-2-scope-03292021.pdf
[16] EPA Method 300.0 Determination of Inorganic Anions by Ion Chromatography https://www.epa.gov/sites/production/files/2015-08/documents/method_300-0_rev_2-1_1993.pdf
[17] RMBEL Chain of Custody Record. https://www.rmbel.info/wp-content/uploads/2020/01/C-of-C-Modification-10-08-19.pdf

to 8 mg/L, with the exception of one site (304) located well into Stony River Bay, where sulfate concentrations are less than 1.0 mg/L.[18]

3.2 08-13-2020 Data Summary

On 08-13-2020 water sampling occurred at lake sites 204 and 501 with a field duplicate (FD) collected at site 204. Sampling at both sites was done using the IS in the top 2m of the water column. Sampling of these two sites began at 0754 hrs and 0948 hrs, respectively. Winds were out of the SE with wind speeds between 0-5mph while sampling site 204 and increasing to 11-15mph while sampling site 501. Cloud cover was between 10-15 percent. No significant weather events had occurred in the week prior to sampling. While Bob Bay was not sampled on this date, Unnamed Creek, which discharges to Bob Bay, was sampled at USGS station 05125730, and showed a sulfate concentration of 237 mg/L. Samples were collected by Lisa Pugh, Rajan Singh, and Noah Greer. Samples were delivered to the lab at 0931 hrs on 08-14-2020. See Table 1 for sample result summary and attached spreadsheet for full dataset.

3.2.1 Table 1. Birch Lake sulfate data collected 08-13-2020

Site ID	Date	Time (24 hrs)	Sample Depth (to nearest 0.5 m)	Sulfate result (mg/L)
501	2020-08-13	948	0-2	5.4
204-S	2020-08-13	755	0-2	6.8
204-S FD	2020-08-13	756	0-2	6.8
SNOK-DS	2020-08-13	1042	0	6.0

3.3 05-11-2021 Data Summary

On 05-11-2021 water sampling occurred at 12 lake sites. Field duplicates were collected at sites 301 and BB-002. The IS was used to collect samples in the top two meters of the water column. At sites with a water depth less than 2 meters, a grab sample was collected at the lake surface. Sampling began at 1126 hrs and the final sample was collected at 1558 hrs. Wind speeds were 0-5mph with winds out of the SW and 5 percent cloud cover. No significant weather events had occurred in the week prior to sampling. Samples were collected by Lisa Pugh assisted by Levi Lexvold. Samples were delivered to the lab at 1005 hrs on 05-12-2021. See Table 2 for sample result summary and attached for full dataset.

[18] Other NMW sampling data from streams in the area shows that sulfate concentrations of roughly 0.5 mg/L are typical in streams draining naturally vegetated watersheds with minimal land alteration. Data may be requested by contacting the author.

3.3.1 Table 2. Birch Lake sulfate data collected 05-11-2021

Site ID	Date	Time (24 hrs)	Sample Depth (to nearest 0.5 m)	Sulfate result (mg/L)
301	2021-05-11	1452	0	42
301 FD	2021-05-11	1453	0	41.8
302	2021-05-11	1558	0-2	5.6
303	2021-05-11	1255	0-2	21.4
304	2021-05-11	1530	0-2	0.8
202-S	2021-05-11	1331	0-2	11.8
203-S	2021-05-11	1343	0-2	11.8
502-S	2021-05-11	1517	0-2	5.9
503-S	2021-05-11	1400	0-2	12.4
BB-001	2021-05-11	1414	0	53.9
BB-002	2021-05-11	1504	0-2	19.1
BB-002 FD	2021-05-11	1505	0-2	18.2
S009-182	2021-05-11	1318	0	15

3.4 06-01-2021 Data Summary

On 06-01-2021 water sampling occurred at eight lake sites. Field duplicates were collected at sites BB-002 and 301. Samples were collected at varying depths depending on the total depth of the lake site. Where sites were less than 2m deep, one sample was collected using the Van Dorn. At sites where the lake is between 2m-4m deep, two samples were collected, one using the IS at the lake surface, and one using the Van Dorn within 1m of the lake bottom. Where sites were deeper than 4m, a third sample was collected at a mid-point in the water column. Sonde readings were also recorded at 1m intervals from the lake surface to lake bottom.[19] Sampling on 06-01-21 began at 1401 hrs and the final sample was collected at 1717 hrs. Wind speeds were 0-5mph with winds out of the SW and 20 percent cloud cover. No significant weather events had occurred in the week prior to sampling. Samples were collected by Lisa Pugh assisted by Levi Lexvold. Samples were delivered to the lab at 0837 hrs on 06-03-2021. See Table 3 for sample result summary and attached spreadsheet for full dataset.

3.4.1 Table 3. Birch Lake sulfate data collected 06-01-2021

Site ID	Date	Time (24 hrs)	Lake Depth (to nearest 0.5 m)	Sample Depth (to nearest 0.5 m)	Sulfate result (mg/L)
301	2021-06-01	1423	1.5	1	23
204-S	2021-06-01	1709	8.5	0-2	8.2

[19] See attached datasheet for sonde profile readings under tab labeled "Sonde Profile Data"

204-M	2021-06-01	1713	8.5	4	7.4
204-D	2021-06-01	1717	8.5	8	7.6
502-S	2021-06-01	1639	5.5	0-2	9.3
502-M	2021-06-01	1642	5.5	3	8.3
502-D	2021-06-01	1647	5.5	5	8.6
BB-001	2021-06-01	1401	1	0.5	44
BB-002-S	2021-06-01	1614	3	0-2	10.7
BB-002-D	2021-06-01	1620	3	3	12.8
BB-003	2021-06-01	1436	2	1	20.9
BB-003 FD	2021-06-01	1437	2	1	21.5
BL-004-S	2021-06-01	1547	6	0-2	9.9
BL-004-M	2021-06-01	1550	6	3	8.7
BL-004-D	2021-06-01	1556	6	5	9.6
BL-004-D FD	2021-06-01	1557	6	5.5	10.1
BL-005-S	2021-06-01	1520	6	0-2	10.5
BL-005-M	2021-06-01	1522	6	3	9.2
BL-005-D	2021-06-01	1527	6	5	10.9

3.5 06-02-2021 Data Summary

On 06-02-2021 water sampling occurred at eight lake sites. Field duplicates were collected at sites BL-001 and 203. Samples were collected at varying depths depending on the total depth of the lake site. Where sites were less than 2m deep, one sample was collected using the Van Dorn. Where sites were between 2m-4m deep, two samples were collected, one using the IS at the lake surface, and one using the Van Dorn within 1m of the lake bottom. Where sites were deeper than 4m, a third sample was collected at a mid-point in the water column. Sonde readings were also recorded at 1m intervals from the lake surface to lake bottom.[20] Sampling on 06-02-21 began at 0805 hrs and the final sample was collected at 1118 hrs. Wind speeds were 0-5mph with winds out of the SW and 40 percent cloud cover. No significant weather events had occurred in the week prior to sampling. Samples were collected by Lisa Pugh assisted Levi Lexvold. Samples were delivered to the lab at 0837 hrs on 06-03-2021. See Table 4 for sample result summary and attached spreadsheet for full dataset.

3.5.1 Table 4. Birch Lake sulfate data collected 06-02-2021

Site ID	Date	Time (24 hrs)	Lake Depth (to nearest 0.5 m)	Sample Depth (to nearest 0.5 m)	Sulfate result (mg/L)
303	2021-06-02	805	1.5	1	16.3
202-S	2021-06-02	838	7	0-2	11.6
202-M	2021-06-02	841	7	4	11.7

[20] See attached datasheet for sonde profile readings under tab labeled "Sonde Profile Data"

202-D	2021-06-02	848	7	6	11.8
203-S	2021-06-02	909	6	0-2	12
203-M	2021-06-02	911	6	3	11.4
203-D	2021-06-02	918	6	6	11.5
203-D FD	2021-06-02	919	6	5	11.4
503-S	2021-06-02	951	6.5	0-2	11.6
503-M	2021-06-02	954	6.5	4	11.2
503-D	2021-06-02	957	6.5	6	11.5
BL-001-S	2021-06-02	1106	7	0-2	11.4
BL-001-M	2021-06-02	1108	7	4	11.7
BL-001-D	2021-06-02	1118	7	6	11.5
BL-001-M FD	2021-06-02	1109	7	4	11.5
BL-002-S	2021-06-02	1015	7	0-2	11.4
BL-002-M	2021-06-02	1018	7	4	11.3
BL-002-D	2021-06-02	1024	7	6	11.2
BL-003-S	2021-06-02	1039	7	0-2	11.3
BL-003-M	2021-06-02	1043	7	4	10.5
BL-003-D	2021-06-02	1046	7	6	11
S009-182	2021-06-02	819	1.5	1	14

3.6 06-07-2021 Data Summary

On 06-07-2021 water sampling occurred at 17 lake sites. Field duplicates were collected at sites 203, 503, BB-001, and BL-005. Samples were collected at varying depths depending on the total depth of the lake site. Where sites were less than 2m deep, one sample was collected using the Van Dorn. Where sites were between 2m-4m deep, two samples were collected, one using the IS at the lake surface, and one using the Van Dorn within 1m of the lake bottom. Where sites were deeper than 4m, a third sample was collected at a mid-point in the water column. Sonde readings were also recorded at 1m intervals from the lake surface to lake bottom.[21] Sampling on 06-07-21 began at 0731 hrs and the final sample was collected at 1333 hrs. Samples were collected by Lisa Pugh assisted by Levi Lexvold. Samples were delivered to the lab at 1120 hrs on 06-08-2021. See Table 5 for sample result summary and attached spreadsheet for full dataset.

3.6.1 Table 5. Birch Lake sulfate data collected 06-07-2021

Site ID	Date	Time (24 hrs)	Lake Depth (to nearest 0.5 m)	Sample Depth (to nearest 0.5 m)	Sulfate result (mg/L)
301	2021-06-07	923	1.5	1	28.3
303	2021-06-07	1034	1.5	1	13.9
202-S	2021-06-07	1104	7	0-2	11.3

[21] See attached datasheet for sonde profile readings under tab labeled "Sonde Profile Data"

202-M	2021-06-07	1106	7	4	11.2
202-D	2021-06-07	1112	7	6	11.3
203-S	2021-06-07	1128	6	0-2	11.4
203-S FD	2021-06-07	1129	6	0-2	11.3
203-M	2021-06-07	1132	6	3	11.5
203-D	2021-06-07	1136	6	5	11.5
204-S	2021-06-07	731	8.5	0-2	8.1
204-M	2021-06-07	733	8.5	4	6.9
204-D	2021-06-07	736	8.5	8	6.1
502-S	2021-06-07	800	5.5	0-2	10.2
502-M	2021-06-07	802	5.5	3	9
502-D	2021-06-07	805	5.5	5	8.9
503-S	2021-06-07	1211	6.5	0-2	11.2
503-S FD	2021-06-07	1212	6.5	0-2	11.4
503-M	2021-06-07	1214	6.5	4	11.5
503-D	2021-06-07	1217	6.5	6	11.3
BB-001	2021-06-07	938	1	0.5	57.1
BB-001 FD	2021-06-07	939	1	0.5	65.1
BB-002-S	2021-06-07	850	3	0-2	10.4
BB-002-D	2021-06-07	852	3	3	11.9
BB-003	2021-06-07	914	2	1	22.1
BL-001-S	2021-06-07	1152	7	0-2	11.2
BL-001-M	2021-06-07	1154	7	4	11.3
BL-001-D	2021-06-07	1158	7	6	12.2
BL-002-S	2021-06-07	1234	7	0-2	11.3
BL-002-M	2021-06-07	1238	7	4	11.9
BL-002-D	2021-06-07	1242	7	6	11.1
BL-003-S	2021-06-07	1302	7	0-2	11.6
BL-003-M	2021-06-07	1304	7	4	11
BL-003-D	2021-06-07	1307	7	6	11.1
BL-004-S	2021-06-07	957	6	0-2	10
BL-004-M	2021-06-07	1000	6	4	9.7
BL-004-D	2021-06-07	1004	6	5	9.3
BL-005-S	2021-06-07	824	6	0-2	10.2
BL-005-M	2021-06-07	826	6	3	9.9
BL-005-D	2021-06-07	831	6	5	9.3
BL-005-D FD	2021-06-07	832	6	5.5	9
BL-006-S	2021-06-07	1324	6	0-2	11.3
BL-006-M	2021-06-07	1328	6	4	10.1
BL-006-D	2021-06-07	1333	6	5	9.3

S009-182	2021-06-07	1047	1.5	1.5	11.5

3.7 06-15-2021 Data Summary

On 06-15-2021 water sampling occurred at lake site 504. One sample was collected at the lake surface using an IS and a second sample was collected at 5.5m using a Van Dorn. Sonde readings were also recorded at 1m intervals from the lake surface to lake bottom.[22] Samples were collected at 0905 hrs and 0907 hrs, respectively. Samples were collected by Lisa Pugh assisted by Levi Lexvold and Hunter Strubhart. Samples were delivered to the lab at 0900 hrs on 06-16-2021. See Table 6 for sample result summary and attached spreadsheet for full dataset.

3.7.1 Table 6. Birch Lake sulfate data collected 06-15-2021

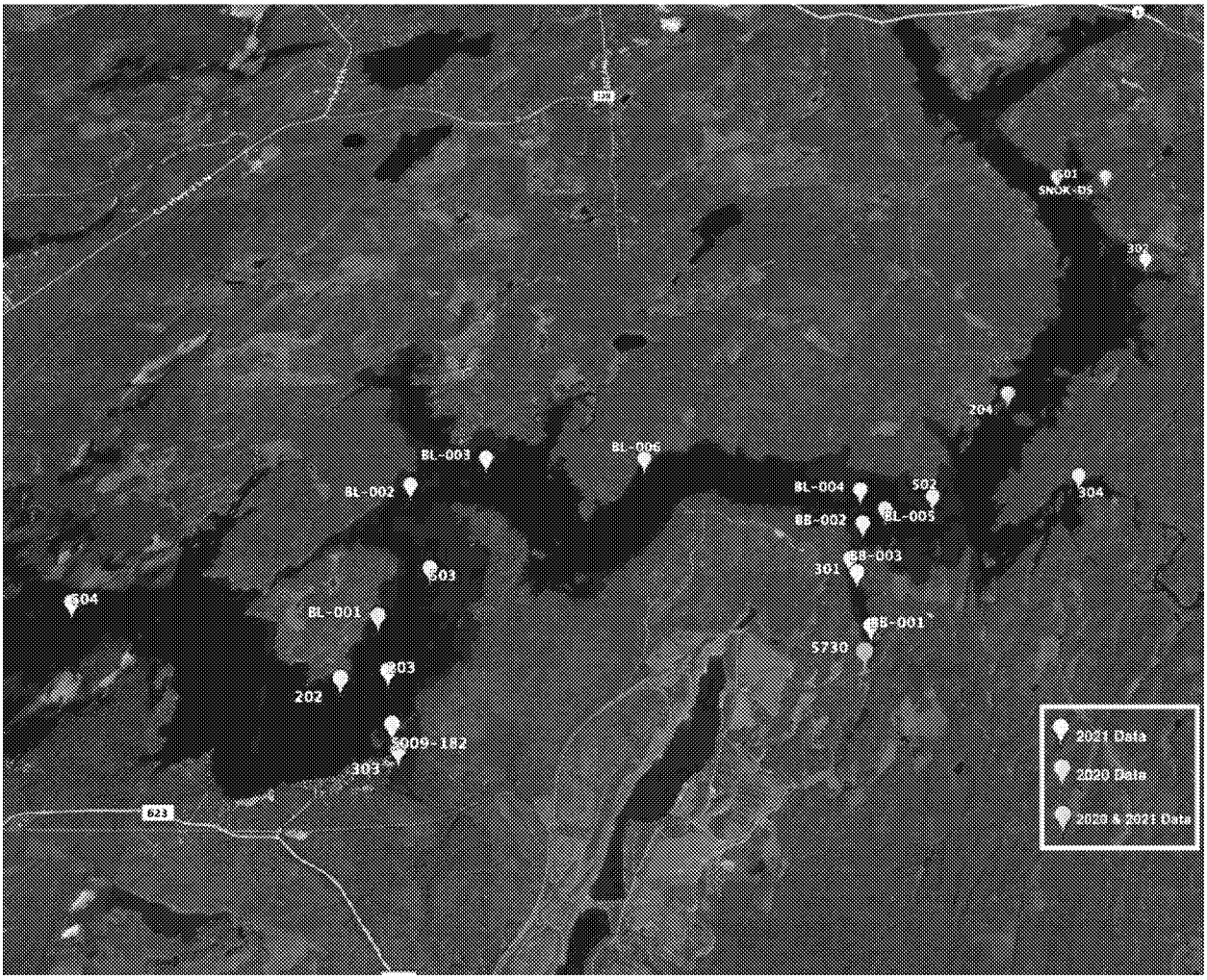
Site ID	Date	Time (24 hrs)	Lake Depth (to nearest 0.5 m)	Sample Depth (to nearest 0.5 m)	Sulfate result (mg/L)
504-S	2021-06-15	0905	6	0-2	11.1
504-D	2021-06-15	0907	6	5.5	11.2

[22] See attached datasheet for sonde profile readings under tab labeled "Sonde Profile Data"

4 Appendix

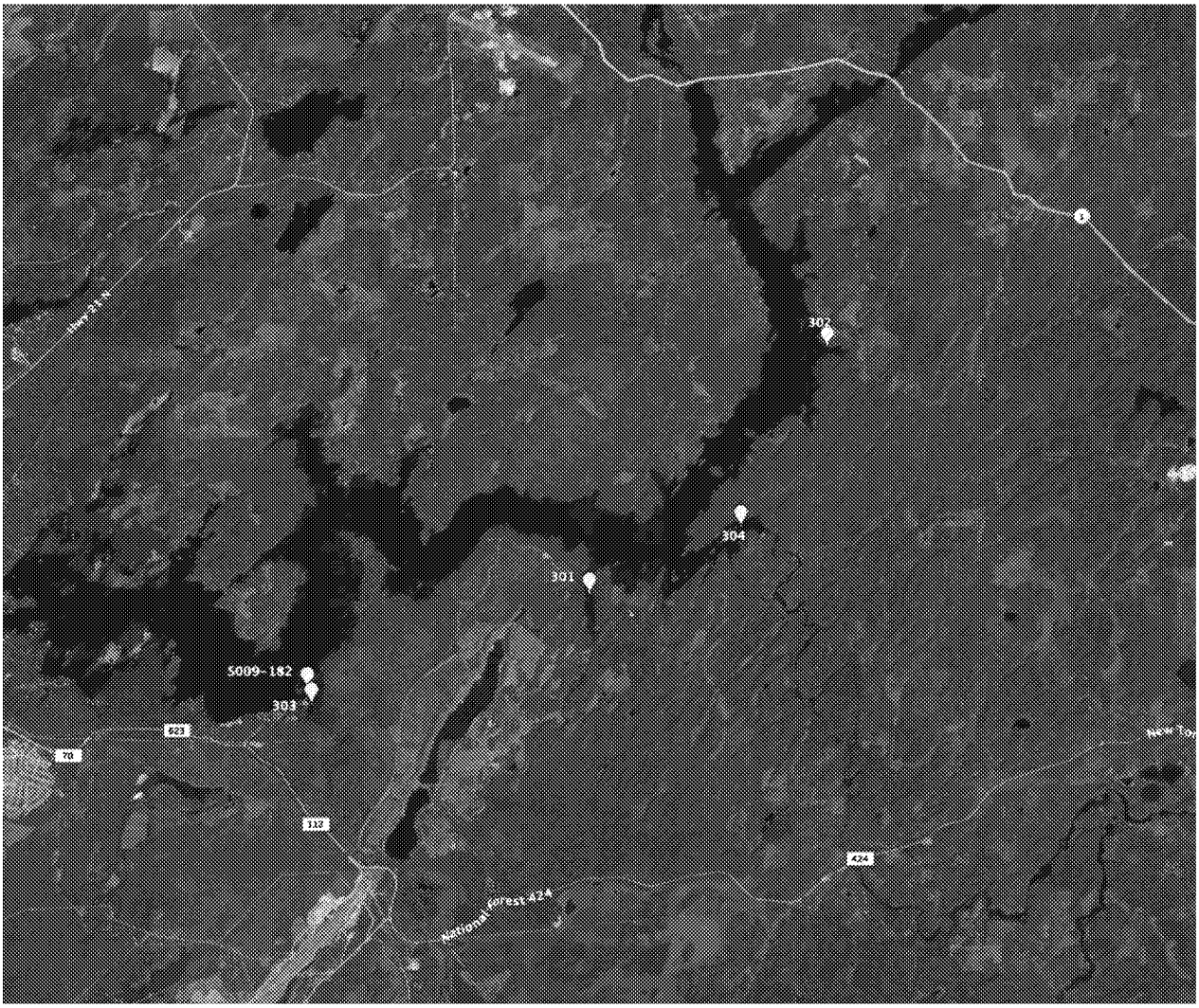
4.1 Figures

4.1.1 *Figure 4. Birch Lake sulfate sampling locations.*

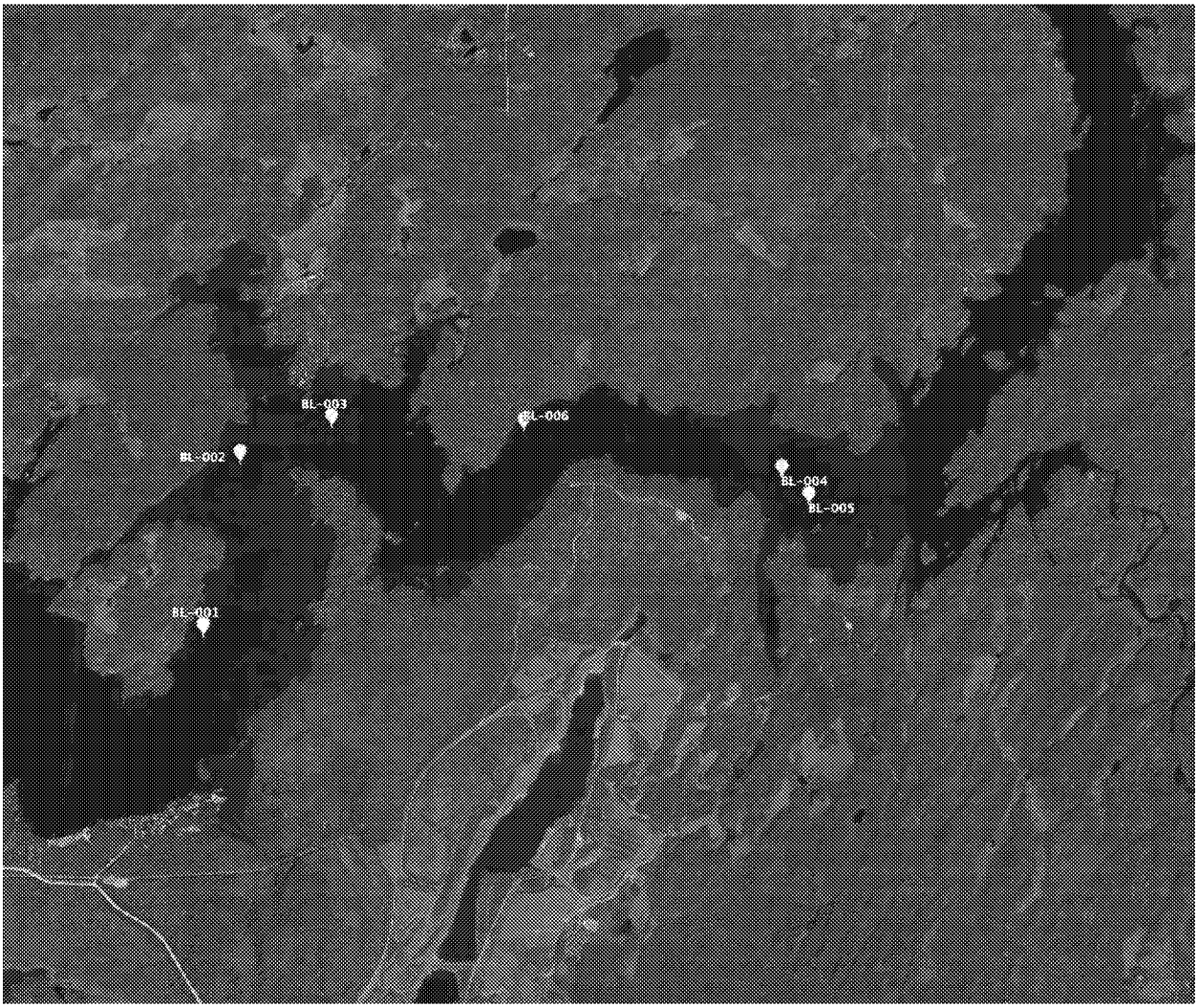


4.1.2 Figure 5. MPCA lake stations – representative surface water site

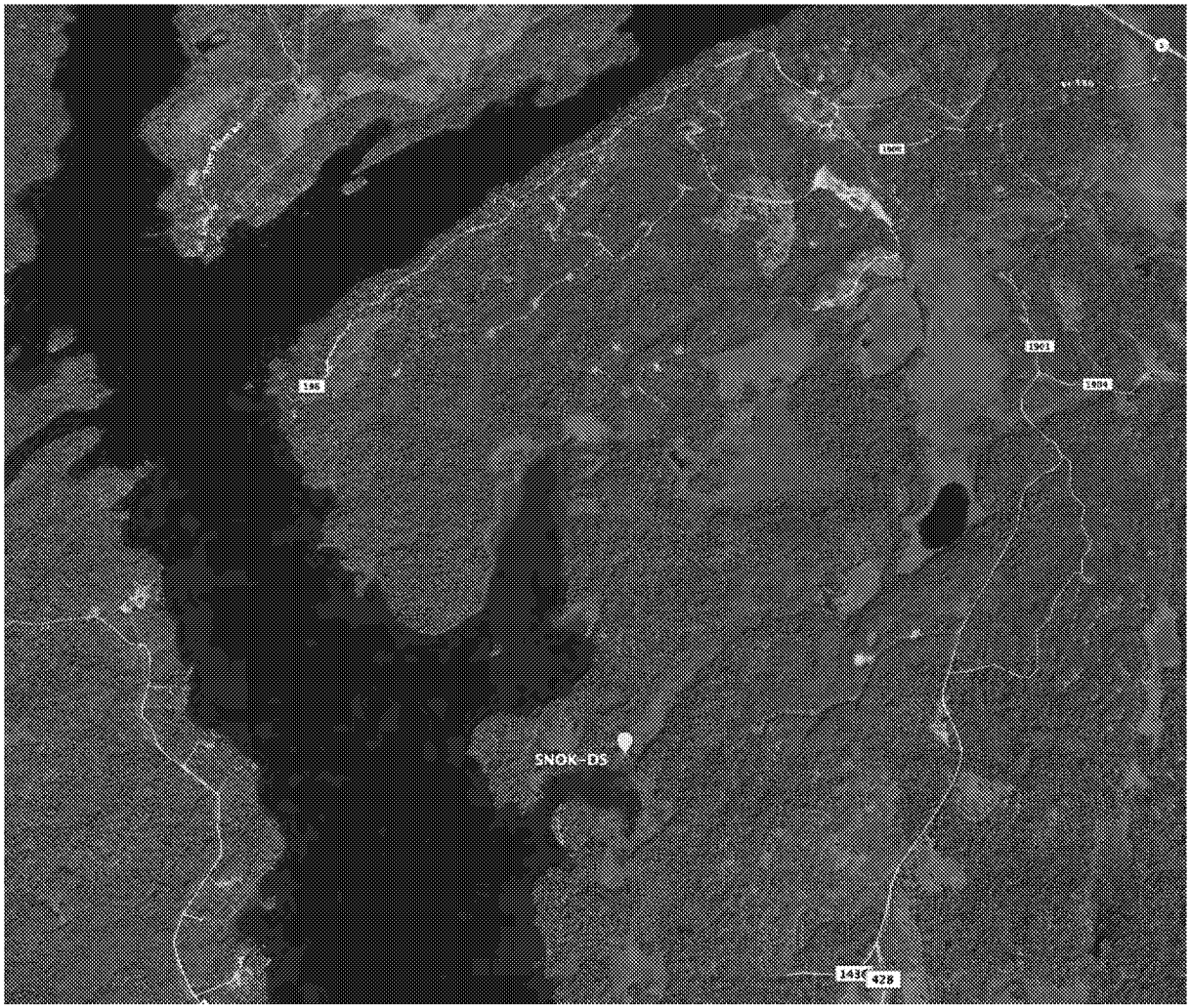
4.1.3 Figure 6. MPCA lake stations - stream inlet sites



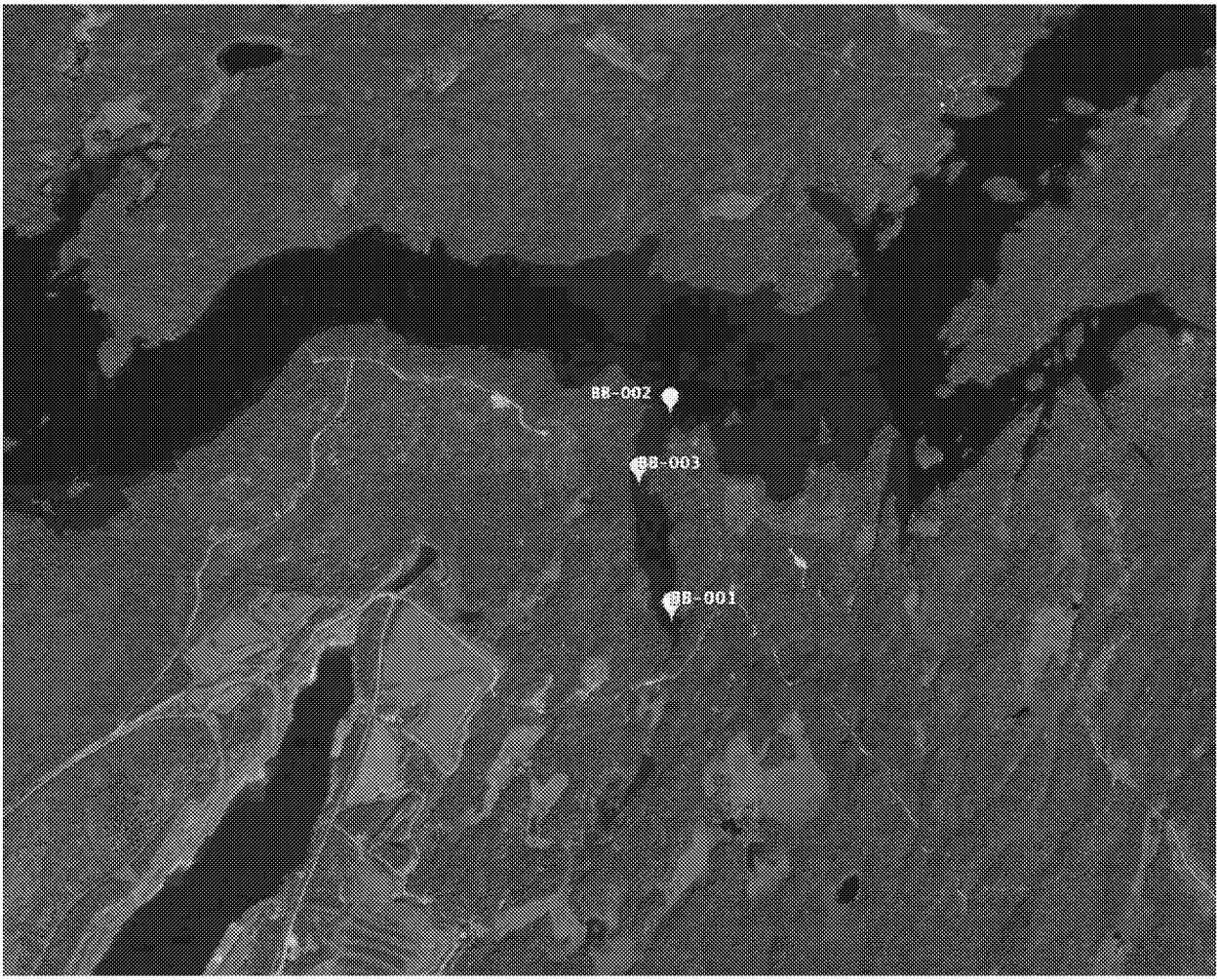
4.1.4 Figure 7. NMW-established lake sites - supplemental representative sites



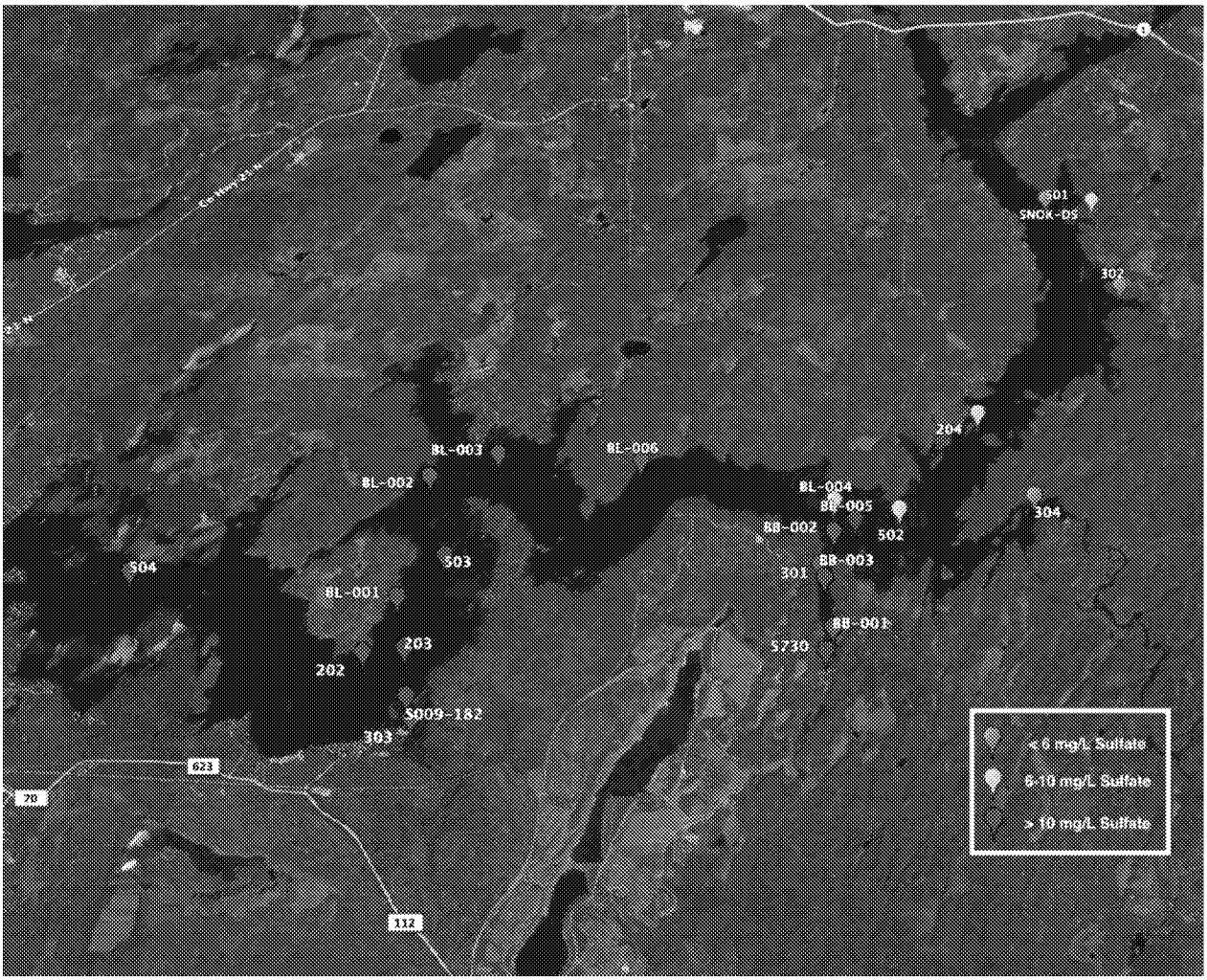
4.1.5 Figure 5. NMW-established lake site – supplemental stream inlet site



5.1.5 Figure 6. NMW-established lake sites - supplemental Bob Bay sites



5.1.6 *Figure 7. Lake site locations and sulfate levels*



Save the Boundary Waters Sonde Calibration Work Sheet

Date & Time of Calibration: 8/13/20 0905

Sonde Serial # 07F101105

Technician: Lisa Pugh

Hand Pad Serial # 06E1765 AB

DO membrane changed? Y (N)

Last changed 8/11/20

Note: Should wait 6 to 8 hours before final DO calibration, run sensor for 15 minutes in Discrete Run to accelerate burn-in.

Turbidity wiper changed? Y N N/A

Wiper parks ≈ 180° from optics? Y N N/A

Note: Change wiper if probe will not park correctly.

Record battery voltage: 8.07v

Record the following diagnostic numbers after/during calibration.

				Record Calibration Values: Before Calibration / After calibration / Cal. Standard		Expiration Date	
Conductivity cell constant	4.80734	Range 5.0	±.5	Conductivity 22.36°	1014	1000	8/13/20 10/12/21
pH MV Buffer 4	164.3	Range +177 from 7 buffer MV		pH 4 22.96°	4.02	4.00	3/13/22 164.3 mV
pH MV Buffer 7	-11.1	Range 0 MV	±50 MV	pH 7 23.50	6.97	7.00	3/13/22 -11.2 mV
pH MV Buffer 10	-189.6	Range –177 from 7 buffer MV		pH 10 23.69	10.05	10.01	3/13/22 -189.6
NOTE: Span between pH 4 and 7 and 7 and 10 millivolt numbers should be ≈ 165 to 180 MV				Turbidity 0			
				Turbidity 123			
DO charge	70.0	Range 50	±25	DO 8.30%	97.4%	95.7%	8.16%
DO gain	1.07507	Range 1.0	.7 to 1.5	ORP			
				Depth			
Pressure Offset		Range –14.7	±6 (non-vented)				
Pressure Offset		Range 0	±6 (vented)				
ORP mV Offset		Range 0	±100				

DISSOLVED OXYGEN SENSOR OUTPUT TEST (after DO calibration probe in saturated air)

The following tests will confirm the proper operation of your DO sensor. The DO charge and gain must meet spec before proceeding.

610/650– Turn off the 610/650, wait 60 seconds. Power up 610/650 and go to the Run mode, watch the DO % output; it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

PC – Stop discrete and unattended sampling. Confirm that auto-sleep RS-232 is enabled (found in Advanced Menu under Setup). Wait 60 seconds. Start discrete sampling at 4 seconds. Watch the DO % output, it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

The **ACCEPT/REJECT** criteria as follows:
The DO output in % must start at a positive number and decrease during the warm up. Example: 117, 117, 114, 113, 110, 107, 104, 102, 101, 100, 100. Should the output display a negative number or start at a low number and climb up to the cal point, the probe is rejected and must not be deployed.

✓ ACCEPT _____ REJECT

Notes:

DO output values not recorded

FINAL CALIBRATION CHECK (to be done asap after each monitoring run)

Date & Time of Calibration Check: 9/13/20 2135

	Record Calibration Check Values	/	Known Standard Value	/	Temperature °C
Conductivity	997	/	1000	/	22.60
pH 4	4.02	/	4.0	/	22.61
pH 7	6.97	/	7.0	/	22.14
pH 10	10.08	/	10.0	/	22.39
DO % saturation	93.2	/		/	18.99
DO mg/L	8.62	/		/	19.04

Save the Boundary Waters - Lake Field Data Sheet

Lake Name: Birch Lake		
Lake ID #: 69-0003-00		
Date: 8/13/20	Time (24hr): 09:48	
Sampled by: LP	Lisa Pugh	Noah Greer, Rajan Singh

Weather

Wind Speed: ☐0-5 ☐6-10 ☒11-15 ☐16-20 ☐>21

% Cloudy: 15

Significant Weather: Rain ☐ Fog ☐ Other ____

Wind Direction: N, E, S, W

Sonde SN: 07F101105

Handpad SN: 06E1765AB

FIELD INFO.	A	B	C	D	E	F	G
SITE NAME	501	204					
DATE	8.13.20	8/13/20					
TIME (24hr)	09:48	0754					
Latitude	47.782769	47.7519					
Longitude	-91.76065	-91.7855					
Depth (ft)	18	28					
Sample Collected? (Y/N)	Y	Y					
Secchi (nearest 0.5ft):	4.0	4.0					
Appearance:	1A-clear; 1B-tea-colored; 2-cloudy; 3-muddy; 4-green; 5-muddy & green						
Appearance:	1B	1B					
Recreation Suitability:	1-Beautiful; 2-Excellent body contact; 3-Body contact impaired; 4-no swim/boating OK; 5-recreation nearly impossible						
Recreation Suitability	1	1					
Water Temp °C	21.95	21.78					
Conductivity (uS/cm)	93.0	107					
pH (pH units)	7.24	7.47					
DO (% Saturation)	91.1%	90.8					
DO (mg/l)	7.96	8.0					
Color* (APHA platinum cobalt color units)	0-100/0-500 200	0-100/0-500 200	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500
Turbidity YSI Sonde (FNUs)							
SAMPLE DEVICE* (Van Dorn / None)	2m Integrated Sampler	2m Integrated Sampler					
SAMPLE TYPE* (Grab, Integrated)	I	I					
QA* (Field Dup)		FD, BB, EB					
Field Notes	Wind 11-15 from SE	Wind 0-5 from SE Sample taken @ 0755					

*See back of sheet for additional instructions/information

Updated 8-12-2020

Save the Boundary Waters – Lake Water Profile and Field Data Sheet

Lake Name Birch Lake		
Lake ID # 69-0003-00	Site ID# 204	Photo Taken ☐
Date 8/13/20	Time (24hr) 0754	
Sampled by: Lisa Pugh, Benjamin Singh, Noah Greer	Lat/Lon 47.7519 -91.7855	
Lake Depth at sampling point (M) 28'	Secchi Depth (Ft) 4.0	

Weather

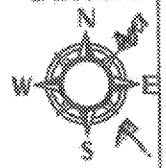
Wind Speed ☒0-5 ☐6-10 ☐11-15 ☐16-20 ☐>21

% Cloudy 10

Significant Weather Rain ☐ Fog ☐

Other _____

Wind Direction



Sonde SN: 07 F 101105

Handpad SN: 06E1765 AB

Lake Observations

Water Color	Green☐ Sediment ☐ Stain☒ Clear☐	
Physical Condition	Crystal Clear	1☒
	Some Algae Present	2☐
	Definite Algae Present	3☐
	High Algae Color	4☐
	Severe Bloom (odorous scum)	5☐
Suitability for Recreation	Beautiful	1☒
	Minor Aesthetic Problems	2☐
	Swimming Slightly Impaired	3☐
	No Swimming/Boating OK	4☐
	No Aesthetics Possible	5☐
Lake Uses Observed	Swimming☐ Skiing☐ Fishing☐ Sailing or Boating☒	
Macrophyte Problems	Depth (Ft)____ Inhibits: Navigation ☐ Fishing☐ Swimming☐	
Color	Scale Used (circle) 0 to 400 0 to 500	Color Units: 100

Zooplankton Abundance	None 0	Few 1	Moderate 2	Fair 3	High 4
Zooplankton Size	Very Small 1	Small 2	Medium 3	Large 4	
Zooplankton notes					

Lake Profile

Depth (M)	TEMP (°C)	DO (mg/l)	DO %	Cond. (us/cm)	pH (pH units)
0	21.76	8.0	90.8	107	7.42
1	21.60	7.97	90.8		
2	21.8	7.95	90.7		
3	21.79	7.96	90.7		
4	21.79	7.94	90.5		
5	21.68	7.25	82.0		
6	[illegible]				
7	21.63	7.20	79.0		
8	21.60	6.82	77.5		
9	21.59	6.18	70.0		
10	21.42	5.43	61.9		
11					
12					

Samples

Depth Top	Depth Bot.	General Chem.	Nutrient	Metals	Hg	Algal Toxins	Zoopl-Ankton
X		☒	☒	☒	☐	☐	☐
		☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐

Chl-a Filter Volume mL

QA Type FD☒ SB☒ BB☒ TB☐

FD= Field Dup, SB=Sampling Blank, BB=Bottle Blank, TB=Trip Blank

Field Observations

Lake not stratified, only surface sample collected.

Save the Boundary Waters - Stream Field Sheet

Project Name: ____________ **Sampler Code:** ____________

Individual Observers-First and Last Names:

Sonde SN: 07F101105

Handpad SN: 06E1765AB

FIELD INFO.	A	B	C	D	E	F	G	H	I	J
SITE NAME	SNOK-BS	5002-812	4990	~~[illegible]~~	5730	5035				
DATE	8-13-20	8-13-20	8/13/20		8/13/20	8/13/20				
TIME (24hr)	10:42	15:55	16:37		1859	2014				
STAGE (* if USGS)		2.27								
Latitude	47.76246	47.839903	47.83472		47.724353	47.78017				
Longitude	-91.75788	-91.695421	-91.67417		-91.814043	~~[illegible]~~ -91.68386				
Depth	4'	~~[illegible]~~	3'9"		6"	1',5"				
Sample Collected? (Y/N)	Y	Y	Y		Y	Y				
GAGE TYPE*	Manual	Staff gage	Manual		Manual	manual				
T Tube (cm): Disap / Reap	/	/	/	/	95 / 100	75 / 68	/	/	/	/
AVG	100 cm	100	69 / 77 (73)		97	~~[illegible]~~ 71.5				
Appearance: 1A-clear; 1B-tea-colored; 2-cloudy; 3-muddy; 4-green; 5-muddy & green										
Appearance:	1B	1B	1B		1B	1B				
Recreation Suitability: 1-Beautiful; 2-Excellent body contact; 3-Body contact impaired; 4-no swim/boating OK; 5-recreation nearly impossible										
Recreation Suitability	1	1	See notes	~~[illegible]~~	5	4				
Stream Condition: * High; Normal; Low; Z = No flow; Dry; Interstitial										
Stream Condition	Low	low	low		L	L				
Rain Event (Y/N)*	N	N	N		N	N				
Water Temp °C	21.60	22.95	20.92		20.17	20.05				
Conductivity (uS/cm)	92	57	74		710	73				
pH (pH units)	6.54	7.06	6.13		7.24	6.23				
DO (% Saturation)	56.3	97.5	55		54.4	13.6				
DO (mg/l)	5.03	8.37	4.89		4.92	1.22				
Color* (APHA platinum cobalt color units)	0-100 / 0-500 (0-100 circled) 80	0-100 / 0-500 (0-100 circled) 70	0-100 / 0-500 (0-500 circled) 250	0-100 / 0-500	0-100 / 0-500 (0-500 circled) 150	0-100 / 0-500 (0-500 circled) 300	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500
Turbidity YSI Sonde (FNUs)										
SAMPLE DEVICE* (Van Dorn / None)	N	N	N		N	N				
SAMPLE TYPE* (Grab, Integrated)	G	G	G		G	G				
QA* (Field Dup)										

* **See back of sheet for additional instructions/information**

Updated 7-15-2020

Wild Rice WQLS, Exhibit 6a

RMB Environmental Laboratories, Inc. — CHAIN OF CUSTODY RECORD

Bloomington, MN | Detroit Lakes, MN | Hibbing, MN
1.888.200.5770 | rmbel@rmbel.info | www.rmbel.info

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: Save the Boundary Waters	Phone #:
	Fax #:
Project Name:	Project Task Code:
	PO/WO #:
Sampler: (print name) Lisa Pugh	Sampler Phone # 952-237-6714
Report to: Lisa Pugh	Bill to: Northeastern Minnesotans for Wilderness
Report to Email: lisa@savetheboundarywaters.org	Bill to Email: Nicole@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Analyses Requested

Lab Code	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Cations	Anions	General Chemistry	Alkalinity	Nutrients	Sulfide	Chlorophyll-a	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
	204 / Lake surface	8/13/20	0755	67	LKSURF-2M	0	2	Sample	Wtr-Surf	X	X	X	X	X		X	
	501 / Lake surface	8/13/20	0948	7	LKSURF-2M	0	2	Sample	Wtr-Surf	X	X	X	X	X		X	
	204 / Field dup	8/13/20	0756	7	LKSURF-2M	0	2	QC-FR	Wtr-surf	X	X	X	X	X		X	
	204 / Equip. blank	8/13/20	0757	7	LKSURF-2M	0	2	QC-EB	~~Wtr-surf~~	X	X	X	X	X		X	QC-Blank *
	SNOK-05	8/13/20	1042	6	LKSURF-2M	0	2	Sample	Wtr-Surf	X	X	X	X	X			
	Bottle Blank	8/13/20	1350	6	QC-Blank	0	0	QC-FB	QC-Blank	X	X	X	X	X		X	
	S002-812	8/13/20	1355	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			
	4990	8/13/20	1637	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			
	5720	8/13/20	1859	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			
	5035	8/13/20	2014	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			

_______ (Initials) In the event that samples are received by the lab at a temperature greater than 6 ° C, I hereby authorize RMB Environmental Laboratories to process the samples as received.

LP (Initials) In the event that samples are received by the lab at a temperature greater than 6 ° C, please contact client at phone # 952-237-6714 before processing samples.

Relinquished by: (client signature)	Date	Time	Relinquished by Lab: (signature)	Date	Time
[signature]	8/14/20	1:31			
Received by Lab: (signature)	Date	Time	Received by Lab: (signature)	Date	Time

☐ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain:
☐ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: ______ ° C
☐ Samples received same day as collection LTG: ______
Comments: ______ Chlorine: No Yes NA

☐ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain:
☐ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: ______ ° C
☐ Samples received same day as collection LTG: ______
Comments:

BILLING
Shipping / Courier:
Mileage:
Field Staff:
Equipment:
Other:

SHIPPING TO LAB
☐ Speedee
☐ UPS
☐ USPS
☐ FedEx
☒ Hand Delivery
☐ Courier
☐ RMB Courier

INTERLAB SHIPPING
☐ Speedee
☐ UPS
☐ USPS
☐ FedEx
☐ Courier
☐ RMB Courier

Save the Boundary Waters Sonde Calibration Work Sheet

Date & Time of Calibration: 5/11/21 1045

Sonde Serial # 07F101105

Technician: Lisa Pugh

Hand Pad Serial # 06E1765 AB

DO membrane changed? Y (N)

Last changed 4/27/21

Note: Should wait 6 to 8 hours before final DO calibration, run sensor for 15 minutes in Discrete Run to accelerate burn-in.

Turbidity wiper changed? Y N N/A

Wiper parks ≈ 180° from optics? Y N N/A

Note: Change wiper if probe will not park correctly.

Record battery voltage: 100%

Record the following diagnostic numbers after/during calibration.

				Before Calibration	After calibration	Cal. Standard Expiration Date
Conductivity cell constant	4.952	Range 5.0 ± .5	Conductivity	1004	1000 @ 18°C	10/12/21
pH MV Buffer 4	149.9	Range +177 from 7 buffer MV	pH 4	4.15	4.00 @ 14.42°C	3/13/22
pH MV Buffer 7	-30.3	Range 0 MV ± 50 MV	pH 7	6.95	7.00 @ 14.37°C	3/13/22
pH MV Buffer 10	-197.4	Range –177 from 7 buffer MV	pH 10	10.14	10.01 @ 14.54°C	3/13/22
			Turbidity 0			
			Turbidity 123			
DO charge	72.7	Range 50 ±25	DO	94.2	96.5 @ 13.44°C	
DO gain	~~1.02264~~ 1.04458	Range 1.0 .7 to 1.5	ORP			
			Depth			
Pressure Offset		Range –14.7 ± 6 (non-vented)				
Pressure Offset		Range 0 ± 6 (vented)				
ORP mV Offset		Range 0 ± 100				

NOTE: Span between pH 4 and 7 and 7 and 10 millivolt numbers should be ≈ 165 to 180 MV

30.25 inHg × 25.4 = 768.35 − (2.5 × 1427/100)

= 732.675 mmHg

DISSOLVED OXYGEN SENSOR OUTPUT TEST (after DO calibration probe in saturated air)

The following tests will confirm the proper operation of your DO sensor. The DO charge and gain must meet spec before proceeding.

610/650– Turn off the 610/650, wait 60 seconds. Power up 610/650 and go to the Run mode, watch the DO % output; it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

PC – Stop discrete and unattended sampling. Confirm that auto-sleep RS-232 is enabled (found in Advanced Menu under Setup). Wait 60 seconds. Start discrete sampling at 4 seconds. Watch the DO % output, it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

The **ACCEPT/REJECT** criteria as follows:
The DO output in % must start at a positive number and decrease during the warm up. Example: 117, 117, 114, 113, 110, 107, 104, 102, 101, 100, 100. Should the output display a negative number or start at a low number and climb up to the cal point, the probe is rejected and must not be deployed.

✓ ACCEPT _____ REJECT

Notes:

107.4 107.3 107.1 104.1 102.3 101.1 100.2 99.6 99.0 98.7

98.4 98.2 98.1 98.0 97.9 97.6

FINAL CALIBRATION CHECK (to be done asap after each monitoring run)

Date & Time of Calibration Check: 5/11/21 1708

	Record Calibration Check Values	/	Known Standard Value	/	Temperature °C
Conductivity	1000	/	1000	/	16.59
pH 4	4.0	/	4.0	/	15.94
pH 7	6.93	/	7.00	/	15.80
pH 10	10.11	/	10.00	/	16.03
DO % saturation	99.0	/	96.5	/	14.23
DO mg/L		/		/	

Save the Boundary Waters - Lake Field Data Sheet

Lake Name: Birch Lake		
Lake ID #: 69-0003-00		
Date: 5/11/21	Time (24hr):	
Sampled by: Lisa Pugh	Levi Lexvold	

Weather

Wind Speed: ☒0-5 ☐6-10 ☐11-15 ☐16-20 ☐>21

Wind Direction: N, W, E, S

% Cloudy: 50

Significant Weather: Rain ☐ Fog ☐ Other ____

Sonde SN: 07F101105

Handpad SN: 06E176SAB

FIELD INFO.	A	B	C	D	E	F	G
SITE NAME	Equip Blank	Bottle Blank	303	600-182	202	203	503
DATE	5/11/21	5/11/21	5/11/21	5/11/21	5/11/21	5/11/21	5/11/21
TIME (24hr)	1126	1132	1255	1318	1331	1343	1400
Latitude			47.731941	47.731992	47.724148	47.72246	47.734779
Longitude			-91.837452	-91.875460	-91.882408	-91.8763	-91.871397
Depth (ft) (m)			1.5	1.5	7	6	6.5
Sample Collected? (Y/N)			Y	Y	Y	Y	Y
Secchi (nearest 0.5ft):			4.0	4.0	5.0	5.0	5.0
Appearance:	1A-clear; 1B-tea-colored; 2-cloudy; 3-muddy; 4-green; 5-muddy & green						
Appearance:			1B	1B	1B	1B	1B
Recreation Suitability:	1-Beautiful; 2-Excellent body contact; 3-Body contact impaired; 4-no swim/boating OK; 5-recreation nearly impossible						
Recreation Suitability			1	1	1	1	1
Water Temp °C			9.56°	7.27°	9.54	9.53	9.06
Conductivity (uS/cm)			230	238	122	120	119
pH (pH units)			7.30	7.29	7.29	7.37	7.3
DO (% Saturation)			101.5	98.9	97.8	99.2	96.6
DO (mg/l)			11.91	11.80	11.16	11.33	11.03
Color* (APHA platinum cobalt color units)	0-100 / 0-500	0-100 / 0-500	0-100 / (0-500) 10×5=50	0-100 (0-500) 10×5=50	0-100 (0-500) 10×5=50	0-100 (0-500) 5×5=25	0-100 (0-500) 10×5=50
Turbidity YSI Sonde (FNUs)							
SAMPLE DEVICE* (Van Dorn / None)			N	N	(Van) IS	(Van) IS	(Van) IS
SAMPLE TYPE* (Grab, Integrated)			G	G	I	I	I
QA* (Field Dup) Chain of Custody	EB	BB	COC	COC	COC	COC	COC
Field Notes	Equip. Blank Integrated Sampler	Bottle Blank	Too shallow for 2 MIS	Too shallow for 2 MIS			

Integrated Sampler

*See back of sheet for additional instructions/information

Updated 8-12-2020

Save the Boundary Waters - Lake Field Data Sheet

Lake Name	Birch Lake
Lake ID #	69-0003-00
Date	5/11/21
Time (24hr)	
Sampled by:	Lisa Pugh, Levi Levold

Weather

Wind Speed: ☒0-5 ☐6-10 ☐11-15 ☐16-20 ☐>21

Wind Direction

% Cloudy 50%

Significant Weather

Rain ☐ Fog ☐

Other

Sonde SN: 07F101105

Handpad SN: 08E1705AB

FIELD INFO.	A	B	C	D	E	F	G
SITE NAME	BB-001	301	301-FD	BB-002	BB-002 FD	502	304
DATE	5/11/21	5/11/21	5/11/21	5/11/21	5/11/21	5/11/21	5/11/21
TIME (24hr)	1441	1452	1453	1504	1505	1517	1530
Latitude	47.72677	47.73252		47.73246		47.740078	47.741637
Longitude	-91.81266	-91.82876		-91.81108		-91.800436	-91.778835
Depth (m)	1	1.5		3		5.5	2.5
Sample Collected? (Y/N)	Y	Y	Y	Y	Y	Y	Y
Secchi (nearest 0.5ft):	2.5 *	4.0	4	4.5		3.0	3.0
Appearance:	1A-clear; 1B-tea-colored; 2-cloudy; 3-muddy; 4-green; 5-muddy & green						
Appearance:	1B	1B		1B		1B	1B
Recreation Suitability:	1-Beautiful; 2-Excellent body contact; 3-Body contact impaired; 4-no swim/boating OK; 5-recreation nearly imposible						
Recreation Suitability	1	1		1		1	1
Water Temp °C	13.22	9.90		9.64		9.77	10.29
Conductivity (uS/cm)	189	185		100		73	47
pH (pH units)	7.38	7.31		7.18		7.03	6.98
DO (% Saturation)	104	98.8		96.5		93.3	100.3
DO (mg/l)	10.92	11.15		10.9		10.54	11.24
Color* (APHA platinum cobalt color units)	0-100/0-500 20×5=100	0-100/0-500 15×5=75	0-100 / 0-500	0-100/0-500 30×5=150	0-100 / 0-500	0-100/0-500 30×5=150	0-100/0-500 30×5=150
Turbidity YSI Sonde (FNUs)							
SAMPLE DEVICE* (Van Dorn / None)	N	N	N	IS	IS	IS	IS
SAMPLE TYPE* (Grab, Integrated)	G	G	G	I	I	I	I
QA* (Field Dup) Chain of Custody	COC	COC	FD, COC	COC	FD, COC	COC	COC
Field Notes	Bottom visible	Water depth <2M	Water depth <2M				

*Integrated Sample

*See back of sheet for additional instructions/information

Updated 8-12-2020

Save the Boundary Waters - Lake Field Data Sheet

Lake Name Birch Lake		
Lake ID # 69-0003-00		
Date 5/11/21	Time (24hr)	
Sampled by:	Lisa Pugh	Levi Lexvold

Weather

Wind Speed ☒0-5 ☐6-10 ☐11-15 ☐16-20 ☐>21

% Cloudy 5

Significant Weather

Rain ☐ Fog ☐

Other

Wind Direction N E S W

Sonde SN: 07 F 101105

Handpad SN: 06E1765 AB

FIELD INFO.	A	B	C	D	E	F	G
SITE NAME	302						
DATE	5/11/21						
TIME (24hr)	1558						
Latitude	47.769427						
Longitude	-91.756711						
Depth (ft) (m)	2.5						
Sample Collected? (Y/N)	Y						
Secchi (nearest 0.5ft):	4.0						
Appearance: 1A-clear; 1B-tea-colored; 2-cloudy; 3-muddy; 4-green; 5-muddy & green							
Appearance:	1B						
Recreation Suitability: 1-Beautiful; 2-Excellent body contact; 3-Body contact impaired; 4-no swim/boating OK; 5-recreation nearly impossible							
Recreation Suitability	1						
Water Temp °C	8.9						
Conductivity (uS/cm)	60						
pH (pH units)	6.6						
DO (% Saturation)	90.4						
DO (mg/l)	9.8						
Color* (APHA platinum cobalt color units)	0-100 / 0-500 (circled) 20x5 = 100	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500	0-100 / 0-500
Turbidity YSI Sonde (FNUs)							
SAMPLE DEVICE* (Van Dorn / None)	IS						
SAMPLE TYPE* (Grab, Integrated)	I						
QA* (Field Dup) Chain of Custody	COC						
Field Notes							

Integrated Sampler

*See back of sheet for additional instructions/information

Updated 8-12-2020

3/3

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CHAIN OF CUSTODY RECORD

Page 1 of 2

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS Exhibit 6

ED_013135_00003520-00032

Client: Save the Boundary Waters / Northeastern Minnesotans for Wilderness Phone #: 952-237-6714 Fax #:

Project Name: Solfide Project Task Code: PO/WO #:

Sampler: (print name) Lisa Pugh (LP) Sampler Phone #: 952-237-6714

Report to: Lisa Pugh Bill to: Lisa Pugh

Report to Email: lisa@savetheboundarywaters.org Bill to Email: lisa@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Work Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfide	Sample Comments (Equipment Type, Filtration, Add. Preservation)
	EB - Equip Blank	5/11/21	1120	1	QC-Blank			QC-EB	QC-Blank			X	
	BB - Bottle Blank	5/11/21	1132	1	QC-Blank			QC-FB	QC-Blank			X	
	203	5/11/21	1255	1	G			Sample	Wtr-surf			X	
	5004-182	5/11/21	1318	1	G			Sample	Wtr-surf			X	
	202	5/11/21	1321	1	LKSURF2M			Sample	Wtr-surf			X	
	203	5/11/21	1343	1	LKSURF2M			Sample	Wtr-surf			X	
	503	5/11/21	1400	1	LKSURF2M			Sample	Wtr-surf			X	
	BB-001	5/11/21	1441	1	LKSURF2M			Sample	Wtr-surf			X	
	301	5/11/21	1452	1	G			Sample	Wtr-surf			X	
	301-FD	5/11/21	1453	1	G			Wtr-surf	QC-FR			X	
	BB-002	5/11/21	1504	1	LKSURF2M			Sample	Wtr-surf			X	
	BB-002-FD	5/11/21	1505	1	LKSURF2M			Wtr-surf	QC-FR			X	
	502	5/11/21	1517	1	LKSURF2M			Sample	Wtr-surf			X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature) Print Name: Lisa Pugh Date: 5/12/21 Time: 1005

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature) Date: 5/12/21 Time: 1005

Additional Fees: Mileage: _____ Field Shift: _____ Shipping: _____ Courier: _____ Equipment: _____ Other: _____

☐ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp: _____ °C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

Wild Rice WQLS Exhibit 63

ED_013135_00003520-00033

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CHAIN OF CUSTODY RECORD

Page 2 of 2

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: Save the Boundary Waters (STBW)/MN	Phone #:	Fax #:
Project Name: Sulfate	Project Task Code:	PO/WO #:
Sampler: (print name) Lisa Pugh	Sampler Phone # 952-237-6214	
Report to: Lisa Pugh	Bill to: Lisa Pugh	
Report to Email: lisa.a.pugh@gmail.com	Bill to Email: lisa@savetheboundarywaters.org	

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Lab Code	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Analyses Requested: Sulfate	Sample Comments: (Equipment Type, Filtration, MS, Preservation)
	304	5/11/21	820	1	GRAB/SM			Sample	Water	X	
	302	5/11/21	855	1	GRAB/SM			Sample	Water	X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6 ° C, I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6 ° C, please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Date: 5/12/21	Time: 1005	Relinquished by Lab: (signature)	Date:	Time:
Received by Lab: (signature)	Date:	Time:	Received by Lab: (signature)	Date:	Time:

☐ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain: _____
☒ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: _____ ° C
☐ Samples received same day as collection LTG: _____
Comments: _____ Chlorine: No Yes NA

☐ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain: _____
☐ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: _____ ° C
☐ Samples received same day as collection LTG: _____
Comments: _____

BILLING (shipping/courier): _____
Released: _____
Field Staff: _____
Equipment: _____
Other: _____

SHIPPING TO LAB
☐ Speedee
☐ UPS
☐ USPS
☐ FedEx
☒ Hand Delivery
☐ Courier
☐ RMB Courier

INTERLAB SHIPPING
☐ Speedee
☐ UPS
☐ USPS
☐ FedEx
☐ Courier
☐ RMB Courier

Save the Boundary Waters Sonde Calibration Work Sheet

Date & Time of Calibration: 6/1/21 0839

Sonde Serial # 07F101105

Technician: Lisa Pugh

Hand Pad Serial # 06E1765 AB

DO membrane changed? (Y) N 5/25/21

Note: Should wait 6 to 8 hours before final DO calibration, run sensor for 15 minutes in Discrete Run to accelerate burn-in.

Turbidity wiper changed? Y N N/A

Wiper parks ≈ 180° from optics? Y N N/A

Note: Change wiper if probe will not park correctly.

Record battery voltage: 9.57 v

Record the following diagnostic numbers after/during calibration.

				Before Calibration	After calibration	Cal. Standard Expiration Date
Conductivity cell constant	4.87686	Range 5.0 ±.5	Conductivity 16.67°C	10086	1000	10/12/21
pH MV Buffer 4	154.6	Range +177 from 7 buffer MV	pH 4 15.94°	3.98	4.00	3/13/22
pH MV Buffer 7	-16.6	Range 0 MV ±50 MV	pH 7 16.66°	7.01	7.00	3/13/22
pH MV Buffer 10	-195.0	Range –177 from 7 buffer MV	pH 10 16.65°	10.15	10.02	3/13/22
NOTE: Span between pH 4 and 7 and 7 and 10 millivolt numbers should be ≈ 165 to 180 MV			Turbidity 0			
			Turbidity 123			
DO charge	70.6	Range 50 ±25	DO	97.2	96.0	
DO gain	~~1.03113~~ 1.03113	Range 1.0 .7 to 1.5	ORP			
			Depth			
Pressure Offset		Range –14.7 ±6 (non-vented)				
Pressure Offset		Range 0 ±6 (vented)				
ORP mV Offset		Range 0 ±100				

30.13 inHg * 25.4 = 765.302 - 35.627 = 729.627 mmHg

DISSOLVED OXYGEN SENSOR OUTPUT TEST (after DO calibration probe in saturated air)

The following tests will confirm the proper operation of your DO sensor. The DO charge and gain must meet spec before proceeding.

610/650– Turn off the 610/650, wait 60 seconds. Power up 610/650 and go to the Run mode, watch the DO % output; it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

PC – Stop discrete and unattended sampling. Confirm that auto-sleep RS-232 is enabled (found in Advanced Menu under Setup). Wait 60 seconds. Start discrete sampling at 4 seconds. Watch the DO % output, it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

The **ACCEPT/REJECT** criteria as follows:
The DO output in % must start at a positive number and decrease during the warm up. Example: 117, 117, 114, 113, 110, 107, 104, 102, 101, 100, 100. Should the output display a negative number or start at a low number and climb up to the cal point, the probe is rejected and must not be deployed.

X ACCEPT ____ REJECT

Notes: 1007.7 1003.5 101.1 99.7 98.6 97.8 97.3 96.9 96.6

DO check @ 1310
Pre cal 97.8% Post-cal 95.7%
21.27°C

96.4 96.3 96.2
96.1 96.0

FINAL CALIBRATION CHECK (to be done asap after each monitoring run)

Date & Time of Calibration Check: 6/1/21 1835

	Record Calibration Check Values	/	Known Standard Value	/	Temperature °C
Conductivity	1003	/	1000	/	28.45
pH 4	4.09	/	4.0	/	24.33
pH 7	6.92	/	7.0	/	25.51
pH 10	10.06	/	10.0	/	26.27
DO % saturation	95.0	/	96.0	/	19.97
DO mg/L	8.39	/	N/A	/	

Samples Collected by Lisa Pugh [illegible] Handpad s/N: 06E1765AB Wind direction: SW Cloud cover: 5% Sig. weather: N

Site	lat	lon	Date	Time	Lake depth	Sample depth	Temp	DO mg/L	DO%	SC us/cm	pH	SO4 mg/L	Sample collected	Sample device	Sample Type	QA/QC	Field notes
EB-VD			6/1/21	1357									Y	VD	QAQC	EB,coc	Equip. Blank - VD
BB			6/1/21	1410									Y	N	QAQC	BB,coc	Bottle Blank
EB-IS			6/1/21	1502									Y	IS	QAQC	EB,COC	Equip. Blank - IS
BL-003																	
BB-001			6/1/21	1355	1	0	22.33	9.44	100.5	180	7.78		N	N			
BB-003	47.72677	-91.81255	6/1/21	[illegible] 1401	[illegible] 1	0.5	21.14	9.31	104.9	174	7.48		Y	VD	VD	COC	
						1	19.18	11.15	119.0	320	7.75		N	N			Lake bottom
301	47.732252	-91.811176	6/1/21	1423	1.5	1	16.28	9.14	94.1	110	7.48		Y	VD	VD	COC	
						1.5	15.65	6.99	70.3	194	7.07		N	N			Lake bottom
				1420		0	17.0	9.26	98.5	131	7.56		N	N			
BB-003	47.73398	-91.81536	6/1/21	1436	2	0	22.2	9.09	103.6	130	7.45		~~Y N~~	~~VD N~~	~~VD~~		
						1	18.4	9.58	102.2	117	7.31		Y	VD	VD	COC	[illegible] FD
						2	15.52	9.5	95.4	195	7.22		N	N			Near bottom
Equip Blank	N/A		6/1/21	1357	NA	2*	15.52	8.1	~~95.6~~	~~186~~	~~bottom~~		N	VD	VD	EB	Lake bottom

1

Site	lat	long	Date	Time	Lake (m) depth	Sample depth (m)	Temp	DO mg/L	DO %	SC µS/cm	pH	SO4 mg/L	Sample Collected	Sample Device	Sample Type	QA/QC	Field notes
BB-002 FD			6/1/21	1437	2	1							Y	VD	QAQC	FD, COC	
BB-002	47.79...	-91.84...	6/1/21	1506	3	0	20.0	8.92	98.2	108	7.29						
						1	18.3	9.23	98.3	100	7.22						
				1506		2	17.94	9.04	95.5	98	7.10		N	N	Sample		Boat drifted, resample
						3	15.9	8.6	87.2	101	6.67						Near bottom
						3	15.7	8.4	85.0	103	6.56						Lake bottom
BL-004	47.7911	-91.8102	6/1/21	1545	6	0	18.46	9.23	98.4	103	7.7		N	N			
						1	16.20	9.23	97.9	[illegible]	7.17						
BL-004 surf				1547		2	17.4	9.10	94.19	98	7.2		Y	IS	I	COC	
BL-004 mid				1550		3	15.85	8.73	86.7	96	7.11		Y	VD	VD	COC	Sample taken @ 3.5m
						4	15.69	8.41	84.9	94	7.01		N	N			
BL-004 Deep				1556		5	15.38	7.98	80.1	99	6.94		Y	VD	VD	COC	Sample taken @ 5.5m, FD
						6	14.98	6.25	66.6	117	6.82		N	N			Near bottom
							14.7	1.15	13.5	130	6.75						Lake bottom
BL-005	47.7889	-91.8059	6/1/21	1515	6	0	20.6	9.12	102.2	107	7.29		N	N			
						1	18.5	9.38	103	103	7.19						
BL-005 surf				1520		2	18.1	9.19	97.5	100	7.15		Y	IS	I	COC	
BL-005 mid				1522		3	16.0	8.95	91.5	96	7.09		Y	VD	VD	COC	Sample taken @ 3.5m
						4	15.3	7.68	77.4	99	6.9		N	N			
BL-005 deep				1527		5	15.21	7.24	72.4	102	6.39		Y	VD	VD	COC	Sample taken @ 5.5m
						5.5	15.09	7.02	69.7	106	3.39		N	N			Near bottom
						6	14.25	1.33	24.6	153	6.41						Lake bottom
S02	47.740078	-91.800435	6/1/21	1635	5.5	0	18.36	9.14	97.0	98	7.05		N	N			
						1	18.22	9.09	96.5	98	7.05		N	N			
S02-S				1639		2	17.75	9.03	95	96	7.08		Y	IS	I	COC	
BL-004-Deep FD			6/1/21	1557	6	5.5							Y	VD	QAQC	FD, COC	

2

Wild Rice WQLS, Exhibit 6a

	Site	Int	Long	Date	Time	Lake depth	Sample depth	Temp	DO mg/L	DO %	SC us/cm	pH	SO4 mg/L	Sample Collected	Sample Device	Sample Type	QA/QC	Field Notes
	A	B	C	D	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
2	202-M			6/1/21	1642	5.5	3	15.96	8.62	97.7	86	6.99		Y	VD	VD	Coc	
3							4	15.74	8.42	95.1	91	6.95		N	N			
4	202-D				1647		5	15.31	7.68	77.8	97	6.89		Y	VD	VD	Coc	
5							5.5	14.4	2.07	21.4	132	6.78		N	N			Lake bottom
6																		
7																		
8	204	47.7335	-93.7855	6/1/21	1705	6.5	0	20.06	9.09	100.1	93	7.06		N	N			
9							1	19.78	9.14	100.1	93	7.06		N	N			
10	204-S				1709		2	16.8	9.13	94.8	84	7.02		Y	IS	I	Coc	
11							3	16.05	8.65	88.4	84	6.91		N	N			
12	204-M				1713		4	15.77	8.38	84.5	86	6.9		Y	VD	VD	Coc	Sample taken @ 4m
13							5	15.63	8.18	82.2	85	6.85		N	N			
14							6	15.51	7.97	71.2	85	6.75		N	N			
15							7	15.5	7.7	74.6	85	6.62		N	N			
16	204-D				1717		8	15.5	7.61	76.2	85	6.61		Y	VD	VD	Coc	Sample taken @ 8m
17							8.5	15.21	0.57	2.58	118	6.54		N	N			Lake bottom
18																		

ED_013135_00003520-00038

Wild Rice WQLS, Exhibit to

Site	Lat	Long	Date	Time	Lake Depth (ft)	Sample depth (m)	Temp	DO mg/L	DO %	SC uS/cm	pH	SDT (mg/L)	Sample Collected	Sample Device	Sample Type	QA	Field Notes
Blanks																	
SB-002	47.73746	-91.61108	9/1/21	1610	3	0	21.42	9.08	102.8	116	7.2		N	N			
						1	18.35	9.4	105	103	7.25		N	N			
SB-002-S				1614		2	17.35	9.07	94.8	104	7.16		Y	IS	I		
SB-002-D				1620		3	16.26	8.81	90	105	7.06		Y	VD	VD		taken @ ~3m; Sonde read near bottom
						3	15.8	8.52	86.3	111	7.04		N	N			take bottom
BL-004					3-4.5												
BL-005					3-4.5												
502	47.740076	-91.800436			4.5-6												

ED_013135_00003520-00039

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Wild Rice WQLS, Exhibit G

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Work Order

Client: Save the Boundary Waters / Northeastern Minnesotans for Wilderness	Phone #:	Fax #:	
Project Name: Sulfate rd 2	Project Task Code:	PO/WO #:	
Sampler: (print name) Lisa Pugh	Sampler Phone #: 952-237-6714		
Report to: Lisa Pugh	Bill to: STBW		
Report to Email: lisa@savetheboundarywaters.org	Bill to Email: nicole@savetheboundarywaters.org		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfate	Sample Comments (Equipment Type, Filtration, AIS, Preservation)
	Equip. Blank - VD	6/1/21	1357	1	QCBLANK			QC-EB	QC-BLANK (Wtr-surf struck)			X	
	BB-001	6/1/21	1401	1	LKDEPTH	0.5	0.5	Sample	Wtr-surf			X	
	Bottle Blank	6/1/21	1410	1	QCBLANK			QC-FB	QCBLANK			X	
	301	6/1/21	1423	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
	BB-003	6/1/21	1436	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
	BB-003-FD	6/1/21	1437	1	LKDEPTH	1	1	QC-FR	Wtr-surf			X	
	Equip. Blank - I	6/1/21	1502	1	QCBLANK			QC-EB	QCBLANK			X	
	BL-004-surf	6/1/21	1547	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
	BL-004-mid	6/1/21	1550	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	
	BL-004-deep	6/1/21	1556	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	
	BL-004-deep-FD	6/1/21	1557	1	LKDEPTH	5.5	5.5	QC-FR	Wtr-surf			X	
	BL-005-surf	6/1/21	1520	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
	BL-005-mid	6/1/21	1522	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6º C, (10º C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6º C, (10º C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
[signature]	Lisa Pugh	6/3/21	0837	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:
[signature]	[illegible]	[illegible]5	

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace; bubble < 6mm: Yes No N/A

RMB Environmental Laboratories, Inc.

Bloomington, MN Detroit Lakes, MN Hibbing, MN

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CHAIN OF CUSTODY RECORD

Page 2 of 4

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS, Exhibit G

Client: STRW / NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Suitcase #2	Project Task Code:	PO/WO #:	
Sampler: (print name) Lisa Pugh	Sampler Phone #:		
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Suitcase	Work Order	Sample Comments: (Equipment Type, Filtration, A/S, Preservation)
	BL-005-deep	6/1/21	1527	1	LKDEPTH	5.5	5.5	Sample	Wtr surf			X		
	BB-002-surf	6/1/21	1614	1	LKSURFM	0	2	Sample	Wtr surf			X		
	BB-002-deep	6/1/21	1620	1	LKDEPTH	3	3	Sample	Wtr surf			X		
	502-surf	6/1/21	1639	1	LKSURFM	0	2	Sample	Wtr surf			X		
	502-mid	6/1/21	1642	1	LKDEPTH	3	3	Sample	Wtr surf			X		
	502-deep	6/1/21	1649	1	LKDEPTH	5	5	Sample	Wtr surf			X		
	204-surf	6/1/21	1709	1	LKSURFM	0	2	Sample	Wtr surf			X		
	204-mid	6/1/21	1713	1	LKDEPTH	4	4	Sample	Wtr surf			X		
	204-deep	6/1/21	1717	1	LKDEPTH	8	8	Sample	Wtr surf			X		
	Bottle blnk	6/2/21	0725	1	QCBLANK			QC-FB	QC BLANK			X		
	Equip. Blank-VO	6/2/21	0730	1	QCBLANK			QC-FB	QC-BLNK			X		
	Equip Blank-I	6/2/21	0735	1	QCBLANK			QC-FB	QC-BLANK			X		
	303	6/2/21	0805	1	LKDEPTH	1	1	Sample	Wtr surf			X		

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pugh	6/3/21	0837	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☑ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Mileage	Field Staff	Additional Fees: Shipping:	Cooler	Shipment	Other
	/ /							

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

ED_013135_00003520-00041

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS, Exhibit G

Client: STPW/NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Sulfate ed 2	Project Task Code:	PO/WO #:	
Sampler: (print name) Lisa Pugh	Sampler Phone #:		
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
	S009-182	6/2/21	0819	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
	202-surf	6/2/21	0838	1	LKSURFM	0	2	Sample	Wtr-surf			X	
	202-mid	6/2/21	0841	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
	202-deep	6/2/21	0848	1	LKDEPTH	6.5	6.5	Sample	Wtr-surf			X	
	203-surf	6/2/21	0109	1	LKSURFM	0	2	Sample	Wtr-surf			X	
	203-mid	6/2/21	0911	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	
	203-deep	6/2/21	0918	1	LKDEPTH	5	5	Sample	Wtr-surf			X	
	203-deep-FD	6/2/21	0919	1	LKDEPTH	5	5	QC-FR	Wtr-surf			X	
	S02-surf	6/2/21	0951	1	LKSURFM	0	2	Sample	Wtr-surf			X	
	S03-mid	6/2/21	0954	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
	S03-deep	6/2/21	0957	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
	BL-002-surf	6/2/21	1015	1	LKSURFM	0	2	Sample	Wtr-surf			X	
	BL-002-mid	6/2/21	1018	1	LKDEPTH	4	4	Sample	Wtr-surf			X	

Work Order

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pugh	6/3/21	0837	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☐ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (Signature)	Date	Time	Additional Fees: Mileage	Field Shell	Shelving	Courier	Equipment	Other

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

ED_013135_00003520-00042

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CHAIN OF CUSTODY RECORD

Page 4 of 4

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS, Exhibit G

Client: STBW/NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Sutton rd 2	Project Task Code:	PO/WO #:	Analyses Requested
Sampler: (print name) Lisa Polk	Sampler Phone #:		Work Order
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Order	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, ABS, Preservation)
	BL-002-Deep	6/2/21	1024	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
	BL-002-surf	6/2/21	1039	1	LKSURFM	0	2	Sample	Wtr-surf			X	
	BL-002-mid	6/2/21	1043	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
	BL-003-deep	6/2/21	1046	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
	BL-001-surf	6/2/21	1106	1	LKSURFM	0	2	Sample	Wtr-surf			X	
	BL-001-mid	6/2/21	1108	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
	BL-001-mid Dup	6/2/21	1109	1	LKDEPTH	4	4	Dup	Wtr-surf			X	
	BL-001-deep	6/2/21	1118	1	LKDEPTH	6	6	Sample	Wtr-surf			X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Polk	6/3/21	0834	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Additional Fees: Mileage: Field Staff: Shipping: Courier: Containers: Other:

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

ED_013135_00003520-00043

Save the Boundary Waters Sonde Calibration Work Sheet

Date & Time of Calibration: 6/2/21 0610

Sonde Serial # 07F101105

Technician: Lisa Pugh

Hand Pad Serial # 06E1765 AB

DO membrane changed? Y (N)

Note: Should wait 6 to 8 hours before final DO calibration, run sensor for 15 minutes in Discrete Run to accelerate burn-in.

Last changed 5/28/21

Turbidity wiper changed? Y N N/A

Wiper parks ≈ 180° from optics? Y N N/A

Note: Change wiper if probe will not park correctly.

Record battery voltage: 8077

Record the following diagnostic numbers after/during calibration.

Record Calibration Values

Before Calibration / After calibration / Cal. Standard Expiration Date

Conductivity cell constant	4.91631	Range 5.0 ± .5	Conductivity 17.99°C	990	1000	10/12/21
pH MV Buffer 4	152.3	Range +177 from 7 buffer MV	pH 4 18.09°C	4.0	4.0	3/13/22
pH MV Buffer 7	-29.8	Range 0 MV ± 50 MV	pH 7 18.46°C	7.0	7.0	3/13/22
pH MV Buffer 10	-197.7	Range –177 from 7 buffer MV	pH 10 18.16°C	10.12	10.01	3/13/22
NOTE: Span between pH 4 and 7 and 7 and 10 millivolt numbers should be ≈ 165 to 180 MV			Turbidity 0			
			Turbidity 123			
DO charge	75.7	Range 50 ± 25	DO	96.6	96.0	
DO gain	1.02309	Range 1.0 .7 to 1.5	ORP			
Pressure Offset		Range –14.7 ± 6 (non-vented)	Depth			
Pressure Offset		Range 0 ± 6 (vented)	30.14 in Hg × 25.4 = 765.556 − 35.675 = 729.881			
ORP mV Offset		Range 0 ± 100				

DISSOLVED OXYGEN SENSOR OUTPUT TEST (after DO calibration probe in saturated air)

The following tests will confirm the proper operation of your DO sensor. The DO charge and gain must meet spec before proceeding.

610/650– Turn off the 610/650, wait 60 seconds. Power up 610/650 and go to the Run mode, watch the DO % output: it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

PC – Stop discrete and unattended sampling. Confirm that auto-sleep RS-232 is enabled (found in Advanced Menu under Setup). Wait 60 seconds. Start discrete sampling at 4 seconds. Watch the DO % output, it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

The **ACCEPT/REJECT** criteria as follows:
The DO output in % must start at a positive number and decrease during the warm up. Example: 117, 117, 114, 113, 110, 107, 104, 102, 101, 100, 100. Should the output display a negative number or start at a low number and climb up to the cal point, the probe is rejected and must not be deployed.

✓ ACCEPT _____ REJECT

Notes:

105.9 101.6 100.1 99.1 98.3 97.8 97.4 97.1 97.0

96.7 96.6 96.5 96.4

FINAL CALIBRATION CHECK (to be done asap after each monitoring run)

Date & Time of Calibration Check: 6/2/21 1251

	Record Calibration Check Values	/	Known Standard Value	/	Temperature °C
Conductivity	1003	/	1000	/	18.19
pH 4	3.97	/	4.0	/	17.9
pH 7	6.9	/	7.0	/	17.94
pH 10	9.96	/	10.00	/	18.00
DO % saturation	91.0	/		/	17.15
DO mg/L	9.37	/		/	

Samples collected by Lisa Pugh + Levi Lexvold

Sonde S/N 07F101105 Handpad S/N 06E1765AB

Wind speed: 0-5 mph
Wind direction: SW
Cloud cover: 20%

Page 1 of 3

Significant weather: N

Wild Rice WQLS, Exhibit 10

Site	Latitude	Longitude	Date	Time	Lake Depth (m)	Sample Depth (m)	Water Temp (°C)	DO (mg/L)	DO (% saturation)	Specific Conductance (uS/cm)	pH (pH units)	Sulfate result (mg/L)	Sample Collected (Y/N)	Sample Device (Van Dorn; ZMI Integrated Sampler; Hose)	Sample Type (Grab/Integrated)	QA (Field Dup; Bottle Blank; Equipment Blank)	Field notes
203	47.737415	-91.874516	6/2/21	0800	1.5 m	0	18.36	9.42	100.3	147	7.76		N	N			
				0805		1	18.28	9.49	100.8	153	7.53		Y	VD	VD	COC	Sample taken @ 0805
						1.5	16.8 16.56	9.03 3.83	94.5 32.3	202 166	7.39 6.95		N	N			Near bottom Lake bottom
203B-180	47.71973	-91.87246	6/2/21	0815	1.5 m	0	18.24	9.36	99.2	132	7.46		N	N			
				0819		1	18.09	9.41	99.9	133	7.43		Y	VD	VD	COC	Sample taken @ 0819
						1.5	18.2 17.3	8.65 8.02	93.3 84.0	145 143	7.25 7.08		N	N			Near bottom Lake bottom
201	47.734149	-91.883208	6/2/21	0835	7 m	0	17.28	9.57	99.5	119	7.45		N	N			
						1	17.28	9.68	100.7	119	7.38		N	N			
202-S				0838		2	16.5	9.64	98.5	119	7.32		Y	ZMI	±	COC	
						3	15.15	9.06	90.8	117	7.17		N	N			
202-M				0841		4	14.91	8.84	87.4	118	7.12		Y	VD	VD	COC	
						5	14.8	8.73	86.2	119	7.1		N	N			
202-D				0848		6	14.3	8.47	83.4	120	7.04		Y	VD	VD	COC	Sample taken @ 6.5m
						7	13.5 13.56	8.2 3.84	78.1 37.8	153 142	6.65 6.7		N	N	N		Near bottom Lake bottom
200	47.7246	-91.8768	6/2/21	0905	5.5 m	0	17.56	9.48 9.4	5.1 98.5	122	7.34		N	N			
						1	17.40	9.39	98.2	122	7.30		N	N			
203 deep				0909		2	16.66	9.16	94.1	118	7.22		Y	IS	I	COC	
203-mid				0911		3	15.16	8.77	87.2	116	7.07		Y	VD	VD	COC	Sample taken @ 3.5m
						4	15.03	8.66	86.1	117	6.92		N	N			
203 dup				0918		5	14.77	8.54	84.7	118	6.89		Y	VD	VD	COC	FD taken @ this site + depth
						5.5	14.56 13.93	8.14 2.1	80.9 20.0	120 140	6.83 6.86		N	N			Near bottom Lake bottom
203 deep FD	↓	↓	6/2/21	0919	5.5	5							Y	VD	VD	FD/COC	

ED_013135_00003520-00046

Wild Rice WQLS, Exhibit G

Site	Lat	Long	Date	Time	Lake (m) Depth	Sample Depth (m)	Temp	DO mg/L	DO%	SC uS/cm	pH	SO4 mg/L	Sample Collected	Sample Device	Sample Tube	QA/QC	Field Notes
BL-001	47.[illegible]	[illegible]	6/2/21	1100	6.5	0	17.49	9.29	97.3	117	7.17		N	N			
						1	16.02	9.01	91.5	116	7.10		N	N			
BL-001-S				1106		2	15.39	8.48	84.9	113	6.98		Y	IS	I	CoC	
						3	15.25	8.47	84.5	115	6.95		N	N			
BL-001-M				1108		4	15.18	8.51	84.5	116	6.92		Y	VD	VD	CoC	
						5	15.15	8.47	84.3	116	6.94		N	N			
BL-001-D				1118		6	14.51	8.22	80.3	119	6.83		Y	VD	VD	CoC	FD taken @ this site
						6.5	13.88	6.31	63.1	121	6.67		N	N			Near bottom
						6.5	13.78	3.34	38.1	125	6.52		N	N			lake bottom
503	47.734729	-91.871397	6/2/21	0945	6.5	0	17.13	9.48	98.5	120	7.36		N	N			
						1	17.02	9.48	98.1	118	7.28		N	N			
503-S				0951		2	16.86	9.44	97.3	117	7.23		Y	IS	I	CoC	
						3	16.5	9.3	95.6	116	7.16		N	N			
503-M				0954		4	15.7	9.12	92.3	115	7.02		Y	VD	VD	CoC	
						5	14.95	8.97	85.1	116	6.79		N	N			
503-D				0957		6	14.6	7.98	79.3	117	6.79		Y	VD	VD	CoC	
						6.5	14.0	6.6	64.0	122	6.62		N	N			Near bottom
						6.5	13.96	3.7	40.0	127	6.5		N	N			Lake bottom
BL-002	47.[illegible]	-91.[illegible]	6/2/21	1010	6.5	0	17.77	9.42	99.1	118	7.24		N	N			
						1	17.65	9.44	99.0	118	7.25		N	N			
BL-002-S				1015		2	17.53	9.41	98.5	118	7.26		Y	IS	I	CoC	[illegible]
						3	16.1	9.13	93.2	115	7.14		N	N			[illegible]
BL001-mid-FD			6/2/21	1109	6.5	4							Y	VD	VD	FD, CoC	

2

Site	Lat	Long	Date	Time	Lake Depth (m)	Depth (m)	Temp	DO mg/L	DO%	SC uS/cm	pH	SO4 (mg/L)	Sample Collected	Sample Device	Sample Type	QA/QC	Field Notes
BL-002-M cont.			6/2/21	1018	6.5	4	15.5	8.7	87.5	113	7.02		Y	VD	VD	COC	
						5	15.26	8.43	84.4	112	6.83		N	N			
BL-002-D				1024		6	14.7	8.0	80.2	117	6.62		Y	VD	VD	COC	
						6.5	14.23	6.27	63.4	119	6.45		N	N			Near bottom
						6.5	13.93	1.78	20.4	127	6.4		N	N			Lake bottom
BL-003	47.74677	-91.86398	6/2/21	1035	7 m	0	18.44	9.37	99.8	117	7.31		N	N			
						1	17.89	9.41	99.4	117	7.29		N	N			
BL-003-S				1039		2	17.52	9.38	98.2	117	7.30		Y	IS	I	COC	
						3	15.93	8.86	92.7	108	7.17		N	N			
BL-003-M				1043		4	15.6	8.4	84.4	108	6.99		Y	VD	VD	COC	
						5	15.31	8.31	82.8	110	6.95		N	N			
BL-003-D				1046		6	14.94	7.91	78.9	113	6.92		Y	VD	VD	COC	Sample taken @ 6.5m
						7	14.13	6.43	62.5	117	6.71		N	N			Near bottom
						7	13.85	3.84	39.6	133	6.58		N	N			Lake bottom
BB-001	47.72677	-91.81266			>1												
301	47.732152	-91.813176			>2												
BB			6/2/21	0725									Y	N	QC		Bottle Blank
EB-VD			6/2/21	0730									Y	VD	QC		Equip. Blank - VD
EB-IS			6/2/21	0735									Y	IS	QC		Equip. Blank - IS

3

Save the Boundary Waters Sonde Calibration Work Sheet

Date & Time of Calibration: 6/7/21 0455 Sonde Serial # ~~06E101105~~ 07C0885 AC

Technician: Lisa Pugh Hand Pad Serial # 06E1765 AB

DO membrane changed? (Y) N Note: Should wait 6 to 8 hours before final DO calibration, run sensor for 15 minutes in Discrete Run to accelerate burn-in.

Changed 6/6/21, all o-rings cleaned/replaced

Turbidity wiper changed? Y N Wiper parks ≈ 180° from optics? Y N Note: Change wiper if probe will not park correctly.

N/A N/A

Record battery voltage: 8.5V

Record Calibration Values

Record the following diagnostic numbers after/during calibration.

				Before Calibration	After calibration	Cal. Standard Expiration Date
Conductivity cell constant	4.90409	Range 5.0 ±.5	Conductivity 24.96°C	1010	1000	10/12/21
pH MV Buffer 4	155.4	Range +177 from 7 buffer MV	pH 4 24.60°	3.18	4.0	3/13/22
pH MV Buffer 7	-19.9	Range 0 MV ±50 MV	pH 7 25.05°	7.22	7.0	3/13/22
pH MV Buffer 10	-198.8	Range –177 from 7 buffer MV	pH 10 24.80°	10.08	10.01	3/13/22
NOTE: Span between pH 4 and 7 and 7 and 10 millivolt numbers should be ≈ 165 to 180 MV			Turbidity 0			
			Turbidity 123			
DO charge	56.1	Range 50 ±25	DO 19.83°C	73.6%	93.9%	
DO gain	1.15502	Range 1.0 .7 to 1.5	ORP	95.5%	94.4%	22.40°C
			Depth			
Pressure Offset		Range –14.7 ±6 (non-vented)				
Pressure Offset		Range 0 ±6 (vented)				
ORP mV Offset		Range 0 ±100				

24.57 mbHg × 25.4 = 751.078 − 35.676 = 715.403 mmHg

DISSOLVED OXYGEN SENSOR OUTPUT TEST (after DO calibration probe in saturated air)

The following tests will confirm the proper operation of your DO sensor. The DO charge and gain must meet spec before proceeding.

610/650– Turn off the 610/650, wait 60 seconds. Power up 610/650 and go to the Run mode, watch the DO % output; it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

PC – Stop discrete and unattended sampling. Confirm that auto-sleep RS-232 is enabled (found in Advanced Menu under Setup). Wait 60 seconds. Start discrete sampling at 4 seconds. Watch the DO % output, it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

The **ACCEPT/REJECT** criteria as follows:
The DO output in % must start at a positive number and decrease during the warm up. Example: 117, 117, 114, 113, 110, 107, 104, 102, 101, 100, 100. Should the output display a negative number or start at a low number and climb up to the cal point, the probe is rejected and must not be deployed.

✓ ACCEPT _____ REJECT

Notes:

98.0 97.8 96.5 95.6 95.0 94.5 94.2 93.9 93.7 93.6

FINAL CALIBRATION CHECK (to be done asap after each monitoring run)

Date & Time of Calibration Check: 1452 6/7/21

	Record Calibration Check Values	/	Known Standard Value	/	Temperature °C
Conductivity	998	/	1000	/	~~23.95~~ 24.07
pH 4	@ 3.99	/	4.0	/	23.78
pH 7	6.95	/	7.0	/	23.93
pH 10	9.98	/	10.00	/	23.80
DO % saturation	93.6	/		/	23.83
DO mg/L	7.90	/		/	23.83

02C0885 AC

Site	Latitude	Longitude	Date	Time	Lake Depth (m)	Sample Depth (m)	Water Temp (°C)	DO (mg/L)	DO (% saturation)	Specific Conductance (uS/cm)	pH (pH units)	Sample Collected (Y/N)	Sample Device (Van Dorn; IS Integrated Sampler; None)	QC (Field Dup; Bottle Blank; Equipment Blank)	Field notes	Sampled by	Wind Speed (mph)	Wind Direction	Cloud Cover (%)	Significant Weather	Sonde S/N	Handheld S/N
[illegible]	[illegible]	[illegible]	6/7/21	1030	4'8" 1.42m	0	21.42	7.9	89.5	150	7.26	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
				1034	1	19.48	8.0	87.1	123	7.2	Y	VD	COC									
					1.5	19.05	7.51	81.1	122	7.04	N	N		Near bottom							
					1.5	16.9	5.25	86.3	124	6.97	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	1045	4'8"	0	21.22	8.12	92.2	119	7.22	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
				1097		0.5	[illegible]	8.10	90.8	119	7.21	Y	VD									
						1.5	19.55	8.00	87.6	119	7.13	N			Sample taken near bottom							
						1.5	19.33	7.33	80.4	121	6.96	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	1100	23'5" 7.12m	0	21.25	8.14	91.8	116	7.25	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
						1	20.13	8.13	89.6	173	7.20	N	N									
202-S				1104		2	19.55	7.99	87.1	117	7.15	Y	IS	COC								
						3	19.00	7.93	86.0	117	7.09	N	N									
202-M				1106		4	18.38	7.64	81.8	116	6.96	Y	VD	COC	Sample taken @ 4.5m							
						5	16.33	7.02	72.3	118	6.70	N	N									
202-D				1112		6	15.02	6.06	[illegible]	118	6.45	Y	VD	COC	Sample taken @ [illegible]							
						7	14.90	1.89	20.5	120	6.26	N	N		Near bottom							
						7	14.94	4.18	92.2	119	6.30	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	1125	19'8"	0	20.89	8.13	91.0	119	7.20	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
						1	20.46	8.11	90.4	119	7.19	N	N									
203-S				1128		2	19.88	7.97	88.7	121	7.10	Y	IS	COC	FD taken @ this site							
203-M				1132		3	19.25	7.90	85.2	118	7.12	Y	VD	COC	Sample taken @ 3.5m							
						4	18.83	7.76	83.4	118	7.06	N	N									
203-D				1136		5	15.97	7.28	73.7	117	6.95	Y	VD	COC	Near bottom							
						5.5	15.52	6.09	61.9	117	6.63	N			Sample taken @ 5.5m							
						5.5	15.29	5.16	51.5	119	6.26	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	1150	25'5" 7.75m	0	22.39	8.21	94.4	117	7.25	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]

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0ZC0885AC

	Latitude	Longitude	Date	Time	Lake Depth (m)	Sample Depth (m)	Water Temp (C)	DO (mg/L)	DO (% saturation)	Specific Conductance (uS/cm)	pH (pH units)	Sample Collected (Y/N)	Sample Device (Van Dorn; ISS integrated Sampler; None)	QC (Field Dup; Bottle Blank; Equipment Blank)	Field notes	Sampled by	Wind Speed (mph)	Wind Direction	Cloud Cover (%)	Significant Weather	Sonde S/N	Handheld S/N
001 Ind			6/7/21		↑	1	20.29	8.14	90.1	116	7.14	N	N			LP · LK	0-5	SW	40	N		
001-S				1152		2	19.57	8.06	88.0	116	7.13	Y	IS	COC								
						3	19.25	7.98	86.3	116	7.10	N	N									
BL-001-M				1154		4	19.17	7.90	85.5	116	7.08	Y	VD	COC								
						5	18.26	7.72	82.0	115	7.03	N	N									
-001-D				1158		6	15.66	7.14	71.8	117	6.87	Y	VD	COC	Sample taken @ 6.5m							
						7	15.1	3.82	41.3	119	6.24	N	N		near bottom							
						7	15.11	1.97	23.2	125	6.28	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	1210	22' 6.8m	0	23.65	8.05	94.9	117	7.27	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
						1	20.72	8.39	94.3	117	7.27	N	N									
S03-S				1211	~~1211~~	2	20.53	8.16	90.7	116	7.20	Y	IS	EQC	FD taken @ this site							
						3	19.39	8.11	88.1	118	7.16	N	N									
S03-M				1214	~~1214~~	4	19.10	7.96	86.1	117	7.13	Y	VD	COC								
						5	18.85	7.82	84.3	116	7.08	N	N									
S03-D				1217	~~1217~~	6	17.5	7.42	77.5	115	6.97	Y	VD	COC								
					↗	6.5	~~16.92~~	1.67	17.2	114	6.27	N	N		Near bottom							
					↘	6.5	17.3	6.04	61.7	115	6.58	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	1230	22' 8" ~7m	0	21.86	8.19	93.5	116	7.25	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
						1	21.64	8.2	93.1	116	7.26	N	N									
BL-002-S				1234		2	20.37	8.05	89.5	115	7.21	Y	IS	COC								
						3	18.91	7.89	84.9	116	7.14	N	N									
BL-002-M				1238		4	18.79	7.7	82.9	116	7.06	Y	VD	COC								
						5	18.02	7.51	79.8	115	7.00	N	N									
BL-002-D				1242		6	17.38	7.19	75.5	114	6.87	Y	VD	COC								
						~~7~~	15.28	3.33	33.5	112	6.21	N	N		near bottom							
						~~7~~	15.44	4.04	7.8	117	6.79	N	N		Lake bottom							

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0ZC0885 AC

Site	Latitude	Longitude	Date	Time	Lake Depth (m)	Sample Depth (m)	Water Temp (°C)	DO (mg/L)	DO (% saturation)	Specific Conductance (uS/cm)	pH (pH units)	Sample Collected (Y/N)	Sample Device	QC	Field notes	Sampled by	Wind Speed (mph)	Wind Direction	Cloud Cover (%)	Significant Weather	Sonde S/N	Handheld S/N
[illegible]	[illegible]	[illegible]	6/7/21	1300	23'1" 7m	0	23.50	8.10	95.6	116	7.1	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
						1	21.35	8.37	94.8	115	7.14	N	N									
[illegible]-003-S				1302		2	20.92	8.25	92.2	115	7.04	Y	IS	COC								
						3	19.5	7.92	86.5	115	7.09	N	N									
[illegible]-003-M				1304		4	18.76	7.68	82.8	114	7.0	Y	VD	COC								
						5	18.06	7.51	79.7	116	6.93	N	N									
[illegible]-003-D				1307		6	17.00	7.02	72.6	114	6.86	Y	VD	COC	Sample taken @ 6.5m							
						[illegible]	15.97	5.96	60.8	114	6.41	N	N		Near bottom							
						[illegible]	15.59	2.94	38.3	122	6.18	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	0939	2'10" 0.8m	0	[illegible]	7.62	88.5	199	7.15	N	N		FD taken @ this site	[illegible]	0-5	SW	40	N	[illegible]	[illegible]
				0938		0.5	21.7[illegible]	7.24	83.1	240	7.08	Y	VD	COC	Sample taken [illegible] bottom							
						[illegible]	21.31	0.58	7.1	277	6.82	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	0920	5'4" 1.5m	0	22.07	7.70	88.0	145	7.14	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
				0923		1	21.63	7.68	87.3	146	7.14	Y	VD	COC								
						1.5	19.39	4.6	49.8	109	6.79	N	N		above bottom							
						1.5	19.18	2.3	28.9	115	6.7	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	0912	6'8" 2m	0	21.63	7.63	86.7	130	7.14	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
				0914		1	21.4	7.64	86.4	130	7.11	Y	VD	COC								
						2	19.3	6.85	75.4	106	6.98	N	N		above bottom							
						2	18.9	5.35	57.6	110	6.9	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	0845	10'4" 3m	0	21.66	7.85	81.2	106	7.11	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]
						1	21.32	7.81	88.2	106	7.11	N	N									
[illegible]				0850		2	21.14	7.67	86.5	111	7.07	Y	IS	COC								
[illegible] Deep				0852		3	20.35	7.34	82.0	105	6.98	Y	VD	COC	Sample taken above bottom							
						3	19.65	4.37	47.7	108	6.82	N	N		Lake bottom							
[illegible]	[illegible]	[illegible]	6/7/21	0955	20'4" 6m	0	21.77	7.91	90.1	104	7.25	N	N			[illegible]	0-5	SW	40	N	[illegible]	[illegible]

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02C0885AC

Wild Rice WQLS Exhibit 6a

			6/7/21		6	1	21.82	7.84	89.3	105	7.2	N	N					0-5	SW	40	N		
BL-00[illegible]-S				0957		2	21.19	7.86	88.8	104	7.13	Y	IS	COC									
						3	20.7	7.7	86.3	101	7.04	N	N										
BL-004-M				1000		4	20.11	7.43	82.2	99	6.97	Y	VD	COC									
BL-004-D				1004		5	17.53	6.77	70.6	94	6.82	Y	VD	COC	Sample taken @ 5.5m								
				[illegible]		6	15.6	5.18	52.1	98	6.67	N	[illegible]		2nd bottom sample								
						6	15.17	2.91	29.0	105	6.45	N	N		Lake bottom								
BL-005	[illegible]	[illegible]	6/7/21	0820	2'4"	0	21.4	7.89	88.5	105	7.16	N	N			[illegible]		0-5	SW	40	N	[illegible]	[illegible]
						1	21.32	7.83	88.4	105	7.15	N	N										
BL-005-S				0824		2	21.21	7.8	87.9	105	7.11	Y	IS	COC									
BL-005-M				0826		3	20.91	7.42	86.7	103	7.08	Y	VD	COC	Sample taken @ 3.5m								
						4	20.05	7.57	88.3	99	6.99	N	N		FD taken @ this site								
BL-005-D				0831		5	18.79	7.22	78.5	101	6.92	Y	VD	EDA	Sample taken @ 5.5m								
						6	15.12	5.1	51.7	96	6.66	N	N		above bottom								
						6	15.72	2.6	26.2	100	6.63	N	N		lake bottom								
[illegible]	[illegible]	[illegible]	6/9/21	0705	17'11" 5.5m	0	21.25	7.79	88.0	104	7.24	N	N			[illegible]		0-5	SW	40	N	[illegible]	[illegible]
						1	21.31	7.82	88.2	105	7.16	N	N										
S02-S				0800		2	21.11	7.69	86.6	101	7.16	Y	IS	COC									
S02-M				0802		3	20.96	7.65	85.8	98	7.08	Y	VD	COC	Sample taken @ 3.5m								
						4	20.26	7.46	82.4	95	7.01	N	N										
S02-D				0805		5	19.05	6.85	74.9	97	6.89	Y	VD	COC									
						5.5	18.3	5.8	64.0	98	6.73	N	N		above lake bottom								
						5.5	17.3	4.8	52.7	130	6.65	N	N		lake bottom								
[illegible]	[illegible]	[illegible]	6/7/21	0820	3'1"	0	[illegible]	7.75	86.0	94	7.27	N	N			[illegible]		0-5	SW	40	N	[illegible]	[illegible]
						1	20.7	[illegible]	85.4	94	6.88	N	N										
Z04-S				0731		2	20.4	7.61	84.9	93	6.96	Y	IS	COC									

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ED_013135_00003520-00054

Site	Latitude	Longitude	Date	Time	Lake Depth (m)	Sample Depth (m)	Water Temp (°C)	DO (mg/L)	DO (% saturation)	Specific Conductance (uS/cm)	pH (pH units)	Sample Collected (Y/N)	Sample Device (Van Dorn; IS Integrated Sampler; None)	QC (Field Dup; Bottle Blank; Equipment Blank)	Field notes	Sampled by	Wind Speed (mph)	Wind Direction	Cloud Cover (%)	Significant Weather	Sonde S/N	Handheld S/N
504			6/7/21			3	20.5	7.5	83.5	89	6.4	N	N				0-5	SW	40	N		
						4	20.01	7.13	78.5	84	6.3	N	N									
504-M				0733		5	19.32	6.83	74.5	83	6.22	Y	VD	COC								
						6	18.81	6.47	69.4	81	6.14	N	N									
						7	18.4	6.19	66.3	80	6.08	N	N									
504-D				0736		8	18.13	5.96	63	79	6.03	Y	VD	COC								
						8.5	17.83	5.3	56.1	80	5.96	N	N		Near bottom							
						8.5	17.62	4.7	50.5	80	5.94	N	N		Lake bottom							
BL005 Deep	[illegible]		6/7/21	0832	6	5.5						Y	VD	FD, COC								
BL00?			6/7/21	0939	[illegible]	0.5						Y	VD	FD, ~~COC~~								
503-Surf			6/7/21	1129	6	0-2						Y	IS	FD, COC								
503-Surf			6/7/21	1212	6.5	0-2						Y	IS	FD, COC								
BL 006	47.24388 -91.81?035		6/7/21	1320	20' 4" 6 m	0	21.7	8.01	91.1	110	7.10	N	N			Lisa Pugh + Lori Lenoir	0-5	SW	40	N		
						1	20.62	8.05	89.9	107	7.0	N	N									
BL-006-S				1324		2	20.33	7.88	87.3	106	7.05	Y	IS	COC								
						3	20.24	7.73	85.7	106	7.01	N	N									
BL-006-M				1328		4	19.89	7.52	82.4	105	6.99	Y	VD	COC								
BL-006-D				1333		5	18.75	7.16	77.7	102	6.98	Y	VD	COC	Sample taken @ 5.5							
[illegible]						6	15.8	5.28	[illegible]	97	6.71	N	N		Near bottom							
						6	15.95	4.58	47.3	95	6.62	N	N		Lake bottom							

02C0??… 06E176SA…

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RMB Environmental Laboratories, Inc.

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CHAIN OF CUSTODY RECORD

Page 1 of 4

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS, Exhibit 6

ED_013135_00003520-00056

Client: Save the Boundary Waters | Phone #: | Fax #:

Project Name: Suite ed 3 | Project Task Code: | PO/WO #:

Sampler: (print name) Lisa Pugh | Sampler Phone #: 952-237-4714

Report to: Lisa Pugh | Bill to: Northern Minnesota for Wilderness

Report to Email: lisa@savetheboundarywaters.com | Bill to Email: nicole@savetheboundarywaters.com

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Work Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Extra Bottle											Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
	Bottle Blank	6/16/21	0834	1	QC-BLANK			QC-EB	QC-BLANK			X											
	Equip Blank-WD	6/16/21	0836	1	QC-BLANK			QC-EB	QC-BLANK			X											
	Equip Blank-TS	6/16/21	0840	1	QC-BLANK			QC-EB	QC-BLANK			X											
	284-surf	6/16/21	0731	1	LKSURFW	0	2	Sample	Wtr-surf			X											
	284-mid	6/16/21	0733	1	LKDEPTH	5	5	Sample	Wtr-surf			X											
	284-deep	6/16/21	0736	1	LKDEPTH	8	8	Sample	Wtr-surf			X											
	302-surf	6/16/21	0800	1	LKSURFW	0	2	Sample	Wtr-surf			X											
	302-mid	6/16/21	0802	1	LKDEPTH	25	25	Sample	Wtr-surf			X											
	302-deep	6/16/21	0805	1	LKDEPTH	55	55	Sample	Wtr-surf			X											
	BL005-surf	6/16/21	0827	1	LKSURFW	0	2	Sample	Wtr-surf			X											
	BL005-mid	6/16/21	0824	1	LKDEPTH	35	35	Sample	Wtr-surf			X											
	BL005-deep	6/16/21	0831	1	LKDEPTH	55	55	Sample	Wtr-surf			X											
	BL005-deep FD	6/16/21	0832	1	LKDEPTH	55	55	QC-FR	Wtr-surf			X											

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time
	Lisa Pugh	6/16/21	1120

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☐ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Additional Fees: Mileage	Field Staff	Shipping	Courier	Equipment	Other

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace bubble < 6mm: Yes No N/A

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CHAIN OF CUSTODY RECORD

Page 2 of 4

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS Exhibit 6

ED_013135_00003520-00057

Client: STPW/NMW | Phone #: | Fax #:

Project Name: Sulfate sd 3 | Project Task Code: | PO/WO #:

Sampler: (print name) Lisa Rude | Sampler Phone #:

Report to: | Bill to:

Report to Email: | Bill to Email:

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Work Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfate	Sample Comments (Equipment Type, Filtration, AIS Preservation)
	BB-002-surf	8/7/21	0930	1	USURFZM	0	2	Sample	Wtr-surf			X	
	BB-002-deep	8/7/21	0852	1	UDEPTH	3	3	Sample	Wtr-surf			X	
	BB-003	8/7/21	0944	1	LDEPTH	1	1	Sample	Wtr-surf			X	
	301	8/7/21	0825	1	LDEPTH	1	1	Sample	Wtr-surf			X	
	BB-001	8/7/21	0938	1	LDEPTH	0.5	0.5	Sample	Wtr-surf			X	
	BR-001-FD	8/7/21	0939	1	LDEPTH	0.5	0.5	DUPLICATE	Wtr-surf			X	
	BL-004-surf	8/7/21	0957	1	LSURFZM	0	2	Sample	Wtr-surf			X	
	BL-004-mid	8/7/21	1000	1	LDEPTH	4	4	Sample	Wtr-surf			X	
	BL-004-deep	8/7/21	1004	1	LDEPTH	5.5	5.5	Sample	Wtr-surf			X	
	302	8/7/21	1034	1	LDEPTH	1	1	Sample	Wtr-surf			X	
	4009-182	8/7/21	1047	1	LDEPTH	1	1	Sample	Wtr-surf			X	
	202-surf	8/7/21	1104	1	LSURFZM	0	2	Sample	Wtr-surf			X	
	202-mid	8/7/21	1100	1	LDEPTH	4.5	4.5	Sample	Wtr-surf			X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished By: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Rude	8/8/21	1120	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☑ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Additional Fees: Mileage	Field Staff	Shipping	Courier	Equipment	Other

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: ____ ° C Therm. ID: LTG ____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

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CHAIN OF CUSTODY RECORD

Page 3 of 4

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS Exhibit 6

ED_013135_00003520-00058

Client: STRM / NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Sullivan Lake rd 2	Project Task Code:	PO/WO #:	
Sampler: (print name) Lisa Rush	Sampler Phone #:		
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfide	Work Order	Sample Comments (Equipment Type, Filtration, MS, Preservation)
	202 - deep	6/7/21	1112	1	LKDEPTH	6.5	6.5	Sample	Wtr-surf			X		
	203 - surf	6/7/21	1128	1	LKSURFW	0	2	Sample	Wtr-surf			X		
	203 - surf FD	6/7/21	1129	1	LKSURFW	0	2	DUPE	Wtr-surf			X		
	203 - mid	6/7/21	1132	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X		
	203 - deep	6/7/21	1130	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X		
	BL-001 surf	6/7/21	1152	1	LKSURFW	0	2	Sample	Wtr-surf			X		
	BL-001 mid	6/7/21	1154	1	LKDEPTH	4	4	Sample	Wtr-surf			X		
	BL-001 deep	6/7/21	1158	1	LKDEPTH	6.5	6.5	Sample	Wtr-surf			X		
	503 - surf	6/7/21	1211	1	LKSURFW	0	2	Sample	Wtr-surf			X		
	503 - surf FD	6/7/21	1212	1	LKSURFW	0	2	DUPE	Wtr-surf			X		
	503 - mid	6/7/21	1214	1	LKDEPTH	4	4	Sample	Wtr-surf			X		
	503 - deep	6/7/21	1213	1	LKDEPTH	6	6	Sample	Wtr-surf			X		
	BL-002 surf	6/7/21	1234	1	LKSURFW	0	2	Sample	Wtr-surf			X		

_____ (initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Rush	6/8/21	1120	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Additional Fees: Mileage	Field Staff	Shipping	Courier	Equipment	Other

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS Exhibit 6

ED_013135_00003520-00059

Client: STBN/NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Wild Rice R3	Project Task Code:	PO/WO #:	
Sampler: (print name) Lisa Pak	Sampler Phone #:		
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfide	Work Order	Sample Comments (Equipment Type, Filtration, AIS, Preservation)
	BL-002-mid	8/12/21	1238	1	DEPTH	4	4	Sample	Wtr-surf			X		
	BL-002-deep	8/12/21	1242	1	DEPTH	6	6	Sample	Wtr-surf			X		
	BL-003-surf	8/12/21	1302	1	DEPTH	0	2	Sample	Wtr-surf			X		
	BL-003-mid	8/12/21	1304	1	DEPTH	4	4	Sample	Wtr-surf			X		
	BL-003-deep	8/12/21	1307	1	DEPTH	6	6	Sample	Wtr-surf			X		
	BL-006-surf	8/12/21	1324	1	DEPTH	0	2	Sample	Wtr-surf			X		
	BL-006-mid	8/12/21	1328	1	DEPTH	4	4	Sample	Wtr-surf			X		
	BL-006-deep	8/12/21	1333	1	DEPTH	5.5	5.5	Sample	Wtr-surf			X		

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pak	8/18/21	1120	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☑ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature)	Date	Time	Additional Fees: Mileage	Field Staff	Shipping	Courier	Equipment	Other

☐ DOES meet proper sample storage and transportation guidelines ☐ Received on ice ☐ Received at room temperature Received Temp: _____ ° C Therm. ID: LTG _____

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

Save the Boundary Waters Sonde Calibration Work Sheet

Date & Time of Calibration: 6/15/21 0525

Sonde Serial # ~~07H0105~~ 07C0885AC

Technician: Lisa Pugh

Hand Pad Serial # 06E1765_AB

DO membrane changed? Y (N) Note: Should wait 6 to 8 hours before final DO calibration, run sensor for 15 minutes in Discrete Run to accelerate burn-in.

Last changed 6/6/21

Turbidity wiper changed? Y N N/A Wiper parks ≈ 180° from optics? Y N N/A Note: Change wiper if probe will not park correctly.

Record battery voltage: 6607

Record Calibration Values

Record the following diagnostic numbers after/during calibration.

				Before Calibration	After calibration	Cal. Standard Expiration Date
Conductivity cell constant	4.9073	Range 5.0 ±.5	Conductivity 19.49°C	999	1000	10/12/21
pH MV Buffer 4	151.4	Range +177 from 7 buffer MV	pH 4 18.50°C	4.06	4.00	3/13/22
pH MV Buffer 7	-20.3	Range 0 MV ±50 MV	pH 7 18.55°C	6.95	7.00	3/13/22
pH MV Buffer 10	-200.2	Range –177 from 7 buffer MV	pH 10 18.43°C	10.18	10.00	3/13/22
			Turbidity 0			
			Turbidity 123			
DO charge	57.4	Range 50 ±25	DO 15.16°C	97.0	96.3	
DO gain	1.12755	Range 1.0 .7 to 1.5	ORP			
			Depth			
Pressure Offset		Range –14.7 ±6 (non-vented)				
Pressure Offset		Range 0 ±6 (vented)				
ORP mV Offset		Range 0 ±100				

NOTE: Span between pH 4 and 7 and 7 and 10 millivolt numbers should be ≈ 165 to 180 MV

30.22 inHg × 25.4 = 767.588 - 35.675 = 731.913 mmHg

DISSOLVED OXYGEN SENSOR OUTPUT TEST (after DO calibration probe in saturated air)

The following tests will confirm the proper operation of your DO sensor. The DO charge and gain must meet spec before proceeding.

610/650– Turn off the 610/650, wait 60 seconds. Power up 610/650 and go to the Run mode, watch the DO % output; it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

PC – Stop discrete and unattended sampling. Confirm that auto-sleep RS-232 is enabled (found in Advanced Menu under Setup). Wait 60 seconds. Start discrete sampling at 4 seconds. Watch the DO % output, it must display a positive number and decrease with each 4 second sample, eventually stabilizing to the calibration value in approximately 60 to 120 seconds. **Note:** You can disregard the first two samples they can be affected by the electronics warm-up.

The **ACCEPT/REJECT** criteria as follows:
The DO output in % must start at a positive number and decrease during the warm up. Example: 117, 117, 114, 113, 110, 107, 104, 102, 101, 100, 100. Should the output display a negative number or start at a low number and climb up to the cal point, the probe is rejected and must not be deployed.

X **ACCEPT** ____ **REJECT**

Notes:

99.1 98.4 97.8 97.4 97.0 96.8 96.6 96.4

96.3 96.2 96.1

FINAL CALIBRATION CHECK (to be done asap after each monitoring run)

Date & Time of Calibration Check: 6/15/21 1955

	Record Calibration Check Values	/ Known Standard Value	/ Temperature °C
Conductivity	997	/ 1000	/ 19.80
pH 4	4.00	/ 4.00	/ 19.16
pH 7	6.96	/ 7.00	/ 18.93
pH 10	10.003	/ 10.00	/ 18.99
DO % saturation	96.8	/	/ 15.41
DO mg/L	9.66	/	/ 15.42

Recalibrated 6/15/21 @ 1410

	Pre calibration Value	/ Post calibration Value	/ Temp °C	/ Cond. cell constant:
Conductivity	1001	/ 1000	/ 18.69	/ 4.90097
pH 4	3.85	/ 4.0	/ 18.35	/ pH mV 159.0
pH 7	7.0	/ 7.0	/ 18.36	pH mV -20.1
pH 10	10.13	/ 10.01	/ 18.44	/ pH mV -198.0
DO %	96.2	/ 96.1	/ 15.6°C	/ Do Charge 57.4
Do mg/L	9.56	/ 9.55	/ 15.73	/ Do gain 1.1258

30.17 mbHg x 25.4 = 766.318 - 35.675 = 730.643 mmHg

98.7 97.7 97.1 96.8 96.5 96.3 96.1 96.0 95.9

Wild Rice

			6/15/21	0930	6.5	0	6	20.83	7.95	86.7	118	7.24	70								0-5	SW	0	N			Rocky			
						1		20.44	7.73	85.9	118	7.18						ICP + RMB	+ Hunter										
4-surf				0905		2		20.39	7.6	84.3	118	7.13			Y	IS	CoC	Sample	S										
						3		20.37	7.59	84.1	118	7.04																	
						4		20.34	7.54	83.6	118	6.58						RMB											
4-deep				0907		5		20.32	7.59	83.4	118	6.54			Y	VD	CoC	Sample taken @ 5.5m											
						6		18.58	6.43	68.8	119	6.46																	
						6.5		17.13	3.5	36.3	125	6.13						Near bottom											
					6.5			17.23	2.72	23.0	132	6.10						Lake bottom											
			6/15/21	0935	7	0	5.5	21.61	7.97	88.6	117	7.14	70								0-5	W	30	N						
						1		20.47	7.82	86.8	117	7.07																	
xxx-surf				0940		2		20.39	7.75	86.0	116	6.99			Y	IS	CoC	ICP + RMB											
						3		20.35	7.73	85.7	117	6.89																	
						4		20.31	7.69	85.2	117	6.56																	
						5		20.1	7.48	83.0	117	6.57																	
xxx-deep				0942		6		17.34	5.95	62.0	121	6.46			Y	VD	CoC	RMB											
						7		16.76	3.29	33.8	123	6.12						Near bottom											
						7		16.8	1.72	18.2	123	6.1						Lake bottom											
			6/16/21	1015	5.6	0	5.5	20.96	7.9	88.7	114	7.03	75								0-5	N	50	N						
						1		20.3	7.94	88.1	114	6.99																	
				1020		2		20.24	7.8	86.2	114	7.0			Y	IS	CoC	ICP + Iso + RMB											
						3		20.22	7.76	85.8	114	6.97																	
						4		20.2	7.73	85.3	114	6.5																	
				1022		5		20.14	7.73	81.2	114	7.16			Y	VD	CoC	RMB Sample @ 5.5											
						6		18.5	6.27	68.4	116	6.54																	
						6.5		17.08	4.78	51.2	116	6.3						Near bottom											
						6.5		16.46	1.63	16.7	124	6.04						Lake bottom											
			6/15/21	1100	6.0	0	5	21.17	7.68	84.6	106	6.99	80																
						1		20.13	7.4	81.7	105	6.92																	
				1104		2		20.01	7.28	80.1	105	6.86			Y	IS	CoC	ICP + RMB											
						3		20.0	7.25	79.9	105	6.83																	

ED_013135_00003520-00062

Wild Rice WQLS Exhibit G3

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: Save the Boundary Waters
Phone #:
Fax #:
Project Name: Routine rd. 1
Project Task Code:
PO/WO #:
Sampler: (print name) Lisa Pugh
Sampler Phone #: 952-237-6714
Report to: Lisa Pugh
Bill to: Northeastern Minnesotans for Wilderness
Report to Email: lisa@savetheboundarywaters.org
Bill to Email: lisa@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Analyses Requested

Work Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Cations	Anions	Gen. Chem	TP	Chloro-A	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
	Bottle Blank	6/15/21	0544	4	QCBLANK			QCBLANK	QC-FB	X		X	X	X	X	X	See attached
	Equipment Blank - IS	6/15/21	0548	4	QCBLANK			QCBLANK	QC-EB	X		X	X	X	X	X	lab list
	Equipment Blank - VD	6/15/21	0552	4	QCBLANK			QCBLANK	QC-EB	X		X	X	X	X	X	for
	504 - surf	6/15/21	0905	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	cation
	504 - deep	6/15/21	0907	3	LKDEPTH	5.5	5.5	Sample	Wtr-surf	X		X	X	X	X		anion
	XXX - surf	6/15/21	0940	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	
	XXX - deep	6/15/21	0942	3	LKDEPTH	6	6	Sample	Wtr-surf	X		X	X	X	X		Gen
	503 - surf	6/15/21	1020	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	Chem
	503 - deep	6/15/21	1022	3	LKDEPTH	5.5	5.5	Sample	Wtr-surf	X		X	X	X	X		analytes
	101 - surf	6/15/21	1104	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	
	101 - deep	6/15/21	1107	3	LKDEPTH	5	5	Sample	Wtr-surf	X		X	X	X	X		
	204 - surf	6/15/21		4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	
	204 - deep	6/15/21		3	LKDEPTH	7.5	7.5	Sample	Wtr-surf	X		X	X	X	X		

_______ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_______ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # ____________ before processing samples.

Relinquished by: (client signature) [signature]
Print Name: Rajan Singh
Date: 6/16/21
Time: 09:00

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature) [signature]
Date: 6/16/21
Time: 0905
Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ **DOES** meet proper sample storage and transportation guidelines
☐ Does **NOT** meet proper sample storage and transportation guidelines
☒ Received on ice
☐ Received at room temperature
☐ Samples received same day as collection
Received Temp: 4.7 °C Therm. ID: LTG 15-IR3
Chlorine: No Yes (N/A)

Comments: ____________

VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

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Hibbing
1111 7th Ave. E.
Hibbing, MN 55746
218-440-2043

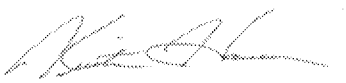
October 07, 2020
Laboratory Report

Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN 55731

RE: Surface Water (Metals to MDL)
Work Order :H000909

Enclosed are the results of analyses for samples received by the laboratory on 08/14/2020 09:31. If you have any questions concerning this report, please feel free to contact me at (218) 440-2043.

Report approved by:



Kristin Hanson
Project Manager
Kristin.Hanson@rmbel.info

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218-440-2043

Laboratory Results
October 07, 2020

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	204/ Lake Surface
Lab Code:	H000909-01	**Collection Method:**	
Matrix:	Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	08/13/2020 07:55	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	08/14/2020 09:31		

Analyte	Result	Units	Analyte Qualifiers	Sample RL	Sample MDL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Facility
Organic Carbon											
Dissolved Organic Carbon	**14.9**	mg/L		1.0		1			EPA 5310	08/22/20 16:48	BL
Classical Chemistry Parameters											
Alkalinity, Total (as CACO3)	**32.0**	mg/L		1.00		1			SM2320 B-2011	08/18/20 12:08	HB
Chlorophyll-a, Pheophytin Corrected	**13.4**	ug/L		1.00					SM10200H	08/26/20 11:10	DL
Nitrogen, Total	**0.479**	mg/L		0.0300		1			TKN + (N+N)	08/20/20 13:48	DL
Ammonia as N	**0.070**	mg/L	msl	0.060		1	EPA 350.1	08/24/20 13:12	EPA 350.1	08/25/20 10:21	DL
Nitrate/Nitrite as N (N+N)	**<0.03**	mg/L		0.03		1			EPA 353.2	08/18/20 15:35	DL
Nitrogen, Total Kjeldahl (TKN)	**0.48**	mg/L		0.30		1	EPA 351.2	08/20/20 08:45	EPA 351.2	08/20/20 13:48	DL
Phosphorus, Total as P	**0.017**	mg/L		0.003		1	EPA 365.3	08/18/20 10:37	EPA 365.3	08/18/20 16:08	DL
Anions by IC											
Chloride	**3.14**	mg/L		0.50		1			EPA 300.0	08/14/20 19:22	HB
Nitrate as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 19:22	HB
Nitrite as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 19:22	HB
Sulfate as SO4	**6.8**	mg/L		0.5	0.3	1			EPA 300.0	08/14/20 19:22	HB

The results in this report apply only to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Hibbing
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Hibbing, MN 55746
218-440-2043

Laboratory Results
October 07, 2020

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	501/ Lake Surface
Lab Code:	H000909-02	**Collection Method:**	
Matrix:	Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	08/13/2020 09:48	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	08/14/2020 09:31		

Analyte	Result	Units	Analyte Qualifiers	Sample RL	Sample MDL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Facility
Organic Carbon											
Dissolved Organic Carbon	**14.1**	mg/L		1.0		1			EPA 5310	08/22/20 16:48	BL
Classical Chemistry Parameters											
Alkalinity, Total (as CACO3)	**28.0**	mg/L		1.00		1			SM2320 B-2011	08/18/20 12:08	HB
Chlorophyll-a, Pheophytin Corrected	**12.3**	ug/L		1.00					SM10200H	08/26/20 11:10	DL
Nitrogen, Total	**0.520**	mg/L		0.0300		1			TKN + (N+N)	08/20/20 13:48	DL
Ammonia as N	**0.071**	mg/L		0.060		1	EPA 350.1	08/24/20 13:12	EPA 350.1	08/25/20 09:47	DL
Nitrate/Nitrite as N (N+N)	**<0.03**	mg/L		0.03		1			EPA 353.2	08/18/20 12:57	DL
Nitrogen, Total Kjeldahl (TKN)	**0.52**	mg/L		0.30		1	EPA 351.2	08/20/20 08:45	EPA 351.2	08/20/20 13:48	DL
Phosphorus, Total as P	**0.016**	mg/L		0.003		1	EPA 365.3	08/18/20 10:37	EPA 365.3	08/18/20 16:08	DL
Anions by IC											
Chloride	**2.46**	mg/L		0.50		1			EPA 300.0	08/14/20 19:40	HB
Nitrate as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 19:40	HB
Nitrite as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 19:40	HB
Sulfate as SO4	**5.4**	mg/L		0.5	0.3	1			EPA 300.0	08/14/20 19:40	HB

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Laboratory Results
October 07, 2020

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	204/ Field DUP
Lab Code:	H000909-03	**Collection Method:**	
Matrix:	Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	08/13/2020 07:56	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	08/14/2020 09:31		

Analyte	Result	Units	Analyte Qualifiers	Sample RL	Sample MDL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Facility
Organic Carbon											
Dissolved Organic Carbon	**14.4**	mg/L		1.0		1			EPA 5310	08/22/20 16:48	BL
Classical Chemistry Parameters											
Alkalinity, Total (as CACO3)	**32.0**	mg/L		1.00		1			SM2320 B-2011	08/18/20 12:08	HB
Chlorophyll-a, Pheophytin Corrected	**14.4**	ug/L		1.00					SM10200H	08/26/20 11:10	DL
Nitrogen, Total	**0.578**	mg/L		0.0300		1			TKN + (N+N)	08/20/20 13:48	DL
Ammonia as N	**0.061**	mg/L		0.060		1	EPA 350.1	08/24/20 13:12	EPA 350.1	08/25/20 09:47	DL
Nitrate/Nitrite as N (N+N)	**<0.03**	mg/L		0.03		1			EPA 353.2	08/18/20 12:58	DL
Nitrogen, Total Kjeldahl (TKN)	**0.58**	mg/L		0.30		1	EPA 351.2	08/20/20 08:45	EPA 351.2	08/20/20 13:48	DL
Phosphorus, Total as P	**0.025**	mg/L		0.003		1	EPA 365.3	08/18/20 10:37	EPA 365.3	08/18/20 15:53	DL
Anions by IC											
Chloride	**3.14**	mg/L		0.50		1			EPA 300.0	08/14/20 19:58	HB
Nitrate as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 19:58	HB
Nitrite as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 19:58	HB
Sulfate as SO4	**6.8**	mg/L		0.5	0.3	1			EPA 300.0	08/14/20 19:58	HB

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Laboratory Results
October 07, 2020

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	204/ Equip. Blank
Lab Code:	H000909-04	**Collection Method:**	
Matrix:	Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	08/13/2020 07:57	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	08/14/2020 09:31		

Analyte	Result	Units	Analyte Qualifiers	Sample RL	Sample MDL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Facility
Organic Carbon											
Dissolved Organic Carbon	**0.9**	mg/L		1.0		1			EPA 5310	08/22/20 16:48	BL
Classical Chemistry Parameters											
Alkalinity, Total (as CACO3)	**<1.00**	mg/L		1.00		1			SM2320 B-2011	08/18/20 12:08	HB
Chlorophyll-a, Pheophytin Corrected	**<1.00**	ug/L		1.00					SM10200H	08/26/20 11:10	DL
Nitrogen, Total	**<0.0300**	mg/L		0.0300		1			TKN + (N+N)	08/20/20 13:48	DL
Ammonia as N	**<0.060**	mg/L		0.060		1	EPA 350.1	08/24/20 13:12	EPA 350.1	08/25/20 09:47	DL
Nitrate/Nitrite as N (N+N)	**<0.03**	mg/L		0.03		1			EPA 353.2	08/18/20 12:59	DL
Nitrogen, Total Kjeldahl (TKN)	**<0.30**	mg/L		0.30		1	EPA 351.2	08/20/20 08:45	EPA 351.2	08/20/20 13:48	DL
Phosphorus, Total as P	**<0.003**	mg/L		0.003		1	EPA 365.3	08/18/20 10:37	EPA 365.3	08/18/20 16:08	DL
Anions by IC											
Chloride	**<0.50**	mg/L		0.50		1			EPA 300.0	08/14/20 14:54	HB
Nitrate as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 14:54	HB
Nitrite as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 14:54	HB
Sulfate as SO4	**<0.3**	mg/L		0.5	0.3	1			EPA 300.0	08/14/20 14:54	HB

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	SNOK- DS
Lab Code:	H000909-05	**Collection Method:**	
Matrix:	Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	08/13/2020 10:42	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	08/14/2020 09:31		

Analyte	Result	Units	Analyte Qualifiers	Sample RL	Sample MDL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Facility
Organic Carbon											
Dissolved Organic Carbon	**14.4**	mg/L		1.0		1			EPA 5310	08/22/20 16:48	BL
Classical Chemistry Parameters											
Alkalinity, Total (as CACO3)	**32.0**	mg/L		1.00		1			SM2320 B-2011	08/18/20 12:08	HB
Nitrogen, Total	**0.537**	mg/L		0.0300		1			TKN + (N+N)	08/20/20 13:48	DL
Ammonia as N	**0.068**	mg/L		0.060		1	EPA 350.1	08/24/20 13:12	EPA 350.1	08/25/20 09:47	DL
Nitrate/Nitrite as N (N+N)	**<0.03**	mg/L		0.03		1			EPA 353.2	08/18/20 13:00	DL
Nitrogen, Total Kjeldahl (TKN)	**0.54**	mg/L		0.30		1	EPA 351.2	08/20/20 08:45	EPA 351.2	08/20/20 13:48	DL
Phosphorus, Total as P	**0.013**	mg/L		0.003		1	EPA 365.3	08/18/20 10:37	EPA 365.3	08/18/20 16:08	DL
Anions by IC											
Chloride	**2.42**	mg/L		0.50		1			EPA 300.0	08/14/20 20:16	HB
Nitrate as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 20:16	HB
Nitrite as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 20:16	HB
Sulfate as SO4	**6.0**	mg/L		0.5	0.3	1			EPA 300.0	08/14/20 20:16	HB

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Laboratory Results
October 07, 2020

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	Bottle Blank
Lab Code:	H000909-06	**Collection Method:**	
Matrix:	Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	08/13/2020 13:50	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	08/14/2020 09:31		

Analyte	Result	Units	Analyte Qualifiers	Sample RL	Sample MDL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Facility
Organic Carbon											
Dissolved Organic Carbon	**0.8**	mg/L		1.0		1			EPA 5310	08/22/20 16:48	BL
Classical Chemistry Parameters											
Alkalinity, Total (as CACO3)	**8.00**	mg/L		1.00		1			SM2320 B-2011	08/18/20 12:08	HB
Chlorophyll-a, Pheophytin Corrected	**<1.00**	ug/L		1.00					SM10200H	08/26/20 11:10	DL
Nitrogen, Total	**<0.0300**	mg/L		0.0300		1			TKN + (N+N)	08/20/20 13:48	DL
Ammonia as N	**<0.060**	mg/L		0.060		1	EPA 350.1	08/24/20 13:12	EPA 350.1	08/25/20 09:47	DL
Nitrate/Nitrite as N (N+N)	**<0.03**	mg/L		0.03		1			EPA 353.2	08/18/20 13:01	DL
Nitrogen, Total Kjeldahl (TKN)	**<0.30**	mg/L		0.30		1	EPA 351.2	08/20/20 08:45	EPA 351.2	08/20/20 13:48	DL
Phosphorus, Total as P	**<0.003**	mg/L		0.003		1	EPA 365.3	08/18/20 10:37	EPA 365.3	08/18/20 16:08	DL
Anions by IC											
Chloride	**<0.50**	mg/L		0.50		1			EPA 300.0	08/14/20 18:29	HB
Nitrate as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 18:29	HB
Nitrite as N	**<0.03**	mg/L		0.03		1			EPA 300.0	08/14/20 18:29	HB
Sulfate as SO4	**<0.3**	mg/L		0.5	0.3	1			EPA 300.0	08/14/20 18:29	HB

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CHAIN OF CUSTODY RECORD

Page 1 of 2

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: Save the Boundary Waters | Phone #: | Fax #:

Project Name: | Project Task Code: | PO/WO #:

Sampler: (print name) Lisa Pugh | Sampler Phone # 952-237-6714

Report to: Lisa Pugh | Bill to: Northeastern Minnesotans for Wilderness

Report to Email: lisa@savetheboundarywaters.org | Bill to Email: nicole@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

1000909

Analyses Requested

Lab Code	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Cations	Anions	General Chemistry	Alkalinity	Nutrients	Sulfide	Chlorophyll-a		Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
-01	204 / lake surface	8/13/20	0759	~~6~~ 7	LKSURF-2M	0	2	Sample	Wtr-Surf	X	X	X	X	X		X	515346	
-02	501 / Lake surface	8/13/20	0948	7	LKSURF-2M	0	2	Sample	Wtr-surf	X	X	X	X	X		X	515347	
-03	204 / Field dup	8/13/20	0756	7	LKSURF-2M	0	2	QC-FR	Wtr-surf	X	X	X	X	X		X	515348	
-04	204 / Equip. blank	8/13/20	0757	7	LKSURF-2M	0	2	QC-EB	~~Wtr-surf~~	X	X	X	X	X		X	515349	QC-Blank
-05	SNOK-BS	8/13/20	1042	6	LKSURF-2M	0	2	Sample	Wtr-Surf	X	X	X	X	X			515350	
-06	Bottle Blank	8/13/20	1350	6	QC-Blank	0	0	QC-FB	QC-Blank	X	X	X	X	X		X	515351	
-07	5002-812	8/13/20	1355	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			515352	
-08	4990	8/13/20	1637	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			515353	
-09	5730	8/13/20	1859	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			515354	
-10	5035	8/13/20	2014	5	Grab	0	0	Sample	Wtr-Surf	X	X	X	X	X			515355	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6 °C, I hereby authorize RMB Environmental Laboratories to process the samples as received.

LP (Initials) In the event that samples are received by the lab at a temperature greater than 6 °C, please contact client at phone # 952-237-6714 before processing samples.

Relinquished by: (client signature)	Date	Time	Relinquished by Lab: (signature)	Date	Time
[signature]	08/14/20	9:31			
Received by Lab: (signature)	Date	Time	Received by Lab: (signature)	Date	Time
[signature]	08/14/20	0945			

☑ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain:
☑ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: ~~4.6~~ 9.0 °C
☑ Samples received same day as collection LTG: 03
JZW
Comments: Chlorine: No Yes NA

☐ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain:
☐ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: _____ °C
☐ Samples received same day as collection LTG:
Comments:

BILLING
Shipping / Courier:
Mileage:
Field Staff:
Equipment:
Other:

SHIPPING TO LAB
☐ Speedee
☐ UPS
☐ USPS
☐ FedEx
☒ Hand Delivery
☐ Courier
☐ RMB Courier

INTERLAB SHIPPING
☐ Speedee
☐ UPS
☐ USPS
☐ FedEx
☐ Courier
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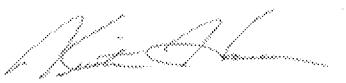
May 14, 2021
Laboratory Report

Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN 55731

RE: Surface Water
Work Order :H002949

Enclosed are the results of analyses for samples received by the laboratory on 05/12/2021 10:06. If you have any questions concerning this report, please feel free to contact me at (218) 440-2043.

Report approved by:



Kristin Hanson
Project Manager
Kristin.Hanson@rmbel.info

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Laboratory Results
May 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	EB - Equipment blank
Lab Code:	H002949-01	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 11:26	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**<0.5**	mg/L	0.5	1			EPA 300.0	05/13/21 04:52		HB

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Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BB - Bottle blank
Lab Code:	H002949-02	**Collection Method:**	
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 11:32	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**<0.5**	mg/L	0.5	1			EPA 300.0	05/13/21 05:10		HB

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Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	303
Lab Code:	H002949-03	**Collection Method:**	G
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 12:55	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**21.4**	mg/L	0.5	1			EPA 300.0	05/13/21 05:27		HB

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NE Minnesotans for Wilderness
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Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	S009-182
Lab Code:	H002949-04	**Collection Method:**	G
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 13:18	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**15.0**	mg/L	0.5	1			EPA 300.0	05/13/21 05:45		HB

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Lisa Pugh
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Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
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Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	202
Lab Code:	H002949-05	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 13:31	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.8**	mg/L	0.5	1			EPA 300.0	05/13/21 06:03		HB

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Detroit Lakes, MN 56501
218-846-1465

Hibbing
1111 7th Ave. E.
Hibbing, MN 55746
218-440-2043

Laboratory Results
May 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	203
Lab Code:	H002949-06	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 13:43	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.8**	mg/L	0.5	1			EPA 300.0	05/13/21 15:15		HB

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Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	503
Lab Code:	H002949-07	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 14:00	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**12.4**	mg/L	0.5	1			EPA 300.0	05/13/21 15:32		HB

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Lisa Pugh
206 E Sheridan St
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Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BB-001
Lab Code:	H002949-08	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 14:41	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**53.9**	mg/L	0.5	1			EPA 300.0	05/13/21 23:52		HB

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NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	301
Lab Code:	H002949-09	**Collection Method:**	G
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 14:52	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**42.0**	mg/L	0.5	1			EPA 300.0	05/14/21 00:46		HB

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Bill To: Save the Boundary Waters
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206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	301-FD
Lab Code:	H002949-10	**Collection Method:**	G
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 14:53	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**41.8**	mg/L	0.5	1			EPA 300.0	05/14/21 01:03		HB

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Project:	Surface Water	**Sample Description:**	BB-002
Lab Code:	H002949-11	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 15:04	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**19.1**	mg/L	0.5	1			EPA 300.0	05/14/21 01:21		HB

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206 E Sheridan St
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Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BB-002-FD
Lab Code:	H002949-12	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 15:05	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**18.2**	mg/L	0.5	1			EPA 300.0	05/14/21 01:39		HB

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Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	502
Lab Code:	H002949-13	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 15:17	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**5.9**	mg/L	0.5	1			EPA 300.0	05/14/21 01:57		HB

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May 14, 2021

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	304
Lab Code:	H002949-14	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 15:30	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**0.8**	mg/L	0.5	1			EPA 300.0	05/14/21 02:15		HB

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May 14, 2021

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	302
Lab Code:	H002949-15	**Collection Method:**	LKSURF2M
Matrix:	Surface Water	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	05/11/2021 15:58	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	05/12/2021 10:06		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**5.6**	mg/L	0.5	1			EPA 300.0	05/14/21 02:33		HB

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Qualifiers and Definitions

Item	Definition
RL	Reporting Limit (Corrected for dilution factor when applicable due to sample preparation variation.)
DF	Dilution Factor
HB	Indicates test performed by RMB Environmental Laboratories - Hibbing.

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RMB Environmental Laboratories, Inc.

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: Save the Boundary Waters / Northeastern Minnesotans for Wilderness | Phone #: 952-237-6714 | Fax #:

Project Name: Sulfate | Project Task Code: | PO/WO #:

Sampler: (print name) Lisa Pugh (LP) | Sampler Phone #: 952-237-6714

Report to: Lisa Pugh | Bill to: Lisa Pugh

Report to Email: lisa@savetheboundarywaters.org | Bill to Email: lisa@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

H002949

Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
01	EB - Equip. Blank	5/11/21	1126	1	QC-Blank			QC-EB	QC-Blank			X	
02	BB - Bottle Blank	5/11/21	1132	1	QC-Blank			QC-FB	QC-Blank			X	
03	303	5/11/21	1255	1	G			Sample	Wtr-surf			X	
04	5009-182	5/11/21	1318	1	G			Sample	Wtr-surf			X	
05	202	5/11/21	1331	1	LKSURF2M			Sample	Wtr-surf			X	
06	203	5/11/21	1343	1	LKSURF2M			Sample	Wtr-surf			X	
07	503	5/11/21	1400	1	LKSURF2M			Sample	Wtr-surf			X	
08	BB-001	5/11/21	1441	1	LKSURF2M			Sample	Wtr-surf			X	
09	301	5/11/21	1452	1	G			Sample	Wtr-surf			X	
10	301-FD	5/11/21	1453	1	G			Wtr-surf	QC-FR			X	
11	BB-002	5/11/21	1504	1	LKSURF2M			Sample	Wtr-surf			X	
12	BB-002-FD	5/11/21	1505	1	LKSURF2M			Wtr surf	QC-FR			X	
13	502	5/11/21	1517	1	LKSURF2M			Sample	Wtr-surf			X	

Page 18 of 19

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature) | Print Name: Lisa Pugh | Date: 5/12/21 | Time: 1005

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature) Kathie Mitchell | Date: 5/12/21 | Time: 1005

Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp: 5.7 °C Therm. ID: LTG HB123

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes N/A

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No N/A

Wild Rice WQLS Exhibit 69

ED_013135_00003520-00089

RMB Environmental Laboratories, Inc.

Bloomington, MN 1.888.200.5770 | Detroit Lakes, MN rmbel@rmbel.info | Hibbing, MN www.rmbel.info

CHAIN OF CUSTODY RECORD

Page 2 of 2

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQS, Exhibit 68

Client: Save the Boundary Waters (STBW)/NMW | Phone #: | Fax #:

Project Name: Sulfate | Project Task Code: | PO/WO #:

Sampler: (print name) Lisa Pugh | Sampler Phone # 952-237-6714

Report to: Lisa Pugh | Bill to: Lisa Pugh

Report to Email: lisa.a.pugh@gmail.com | Bill to Email: lisa@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Analyses Requested

H002949

Lab Code	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
14	304	5/11/21	1530	1	LKSURFZM			Sample	Wtr-surf	X	
15	302	5/11/21	1558	1	LKSURFZM			Sample	Wtr-surf	X	

Page 19 of 19

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6 ° C, I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6 ° C, please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Date	Time	Relinquished by Lab: (signature)	Date	Time
	5/12/21	1005			
Received by Lab: (signature)	**Date**	**Time**	**Received by Lab: (signature)**	**Date**	**Time**
Kathie Ritchey	5/12/21	10:06			

☒ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain: _____
☒ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: 5.7 ° C
☐ Samples received same day as collection LTG: H81P3
Comments: _____ Chlorine: No Yes NA

☐ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
Explain: _____
☐ Rcvd on ice ☐ Rcvd at room temp Rcvd Temp: _____ ° C
☐ Samples received same day as collection LTG: _____
Comments: _____

BILLING
Shipping / Courier:
Mileage:
Field Staff:
Equipment:
Other:

SHIPPING TO LAB
☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☒ Hand Delivery ☐ Courier ☐ RMB Courier

INTERLAB SHIPPING
☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier

ED_013135_00003520-00090

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218-440-2043

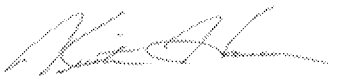
June 08, 2021
Laboratory Report

Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN 55731

RE: Surface Water
Work Order :H003200

Enclosed are the results of analyses for samples received by the laboratory on 06/03/2021 08:35. If you have any questions concerning this report, please feel free to contact me at (218) 440-2043.

Report approved by:



Kristin Hanson
Project Manager
Kristin.Hanson@rmbel.info

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Laboratory Results
June 08, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	Equip. Blank -VD
Lab Code:	H003200-01	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 13:57	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/03/21 16:32		HB

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Project:	Surface Water	**Sample Description:**	BB-001
Lab Code:	H003200-02	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 14:01	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**44.0**	mg/L	0.5	1			EPA 300.0	06/03/21 16:49		HB

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Bill To: Save the Boundary Waters
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206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	Bottle Blank
Lab Code:	H003200-03	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 14:10	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**0.9**	mg/L	0.5	1			EPA 300.0	06/03/21 17:07		HB

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206 E Sheridan St
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Project:	Surface Water	**Sample Description:**	301
Lab Code:	H003200-04	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 14:23	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**23.0**	mg/L	0.5	1			EPA 300.0	06/03/21 17:25		HB

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Project:	Surface Water	**Sample Description:**	BB-003
Lab Code:	H003200-05	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 14:36	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**20.9**	mg/L	0.5	1			EPA 300.0	06/03/21 17:43		HB

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Project:	Surface Water	**Sample Description:**	BB-003 FD
Lab Code:	H003200-06	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 14:37	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**21.5**	mg/L	0.5	1			EPA 300.0	06/03/21 18:01		HB

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Project:	Surface Water	**Sample Description:**	Equip. Blank- I
Lab Code:	H003200-07	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:02	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/03/21 18:19		HB

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Project:	Surface Water	**Sample Description:**	BL-004-Surf
Lab Code:	H003200-08	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:47	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.9**	mg/L	0.5	1			EPA 300.0	06/03/21 20:24		HB

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Project:	Surface Water	**Sample Description:**	BL-004-Mid
Lab Code:	H003200-09	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:50	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**8.7**	mg/L	0.5	1			EPA 300.0	06/03/21 20:41		HB

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Project:	Surface Water	**Sample Description:**	BL-004-deep
Lab Code:	H003200-10	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:56	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.6**	mg/L	0.5	1			EPA 300.0	06/03/21 20:59		HB

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Project:	Surface Water	**Sample Description:**	BL-004-deep-FD
Lab Code:	H003200-11	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:57	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.1**	mg/L	0.5	1			EPA 300.0	06/03/21 21:17		HB

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Project:	Surface Water	**Sample Description:**	BL-005-surf
Lab Code:	H003200-12	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:20	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.5**	mg/L	0.5	1			EPA 300.0	06/03/21 21:35		HB

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Project:	Surface Water	**Sample Description:**	BL-005-mid
Lab Code:	H003200-13	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:22	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.2**	mg/L	0.5	1			EPA 300.0	06/03/21 21:53		HB

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Project:	Surface Water	**Sample Description:**	BL-005-deep
Lab Code:	H003200-14	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 15:27	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.9**	mg/L	0.5	1			EPA 300.0	06/03/21 22:46		HB

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Project:	Surface Water	**Sample Description:**	BB-002-surf
Lab Code:	H003200-15	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 16:14	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.7**	mg/L	0.5	1			EPA 300.0	06/03/21 23:40		HB

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Project:	Surface Water	**Sample Description:**	BB-002-deep
Lab Code:	H003200-16	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 16:20	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**12.8**	mg/L	0.5	1			EPA 300.0	06/03/21 23:58		HB

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Project:	Surface Water	**Sample Description:**	502-surf
Lab Code:	H003200-17	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 16:39	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.3**	mg/L	0.5	1			EPA 300.0	06/04/21 00:15		HB

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Project:	Surface Water	**Sample Description:**	502-mid
Lab Code:	H003200-18	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 16:42	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**8.3**	mg/L	0.5	1			EPA 300.0	06/04/21 00:33		HB

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Project:	Surface Water	**Sample Description:**	502-deep
Lab Code:	H003200-19	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 16:47	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**8.6**	mg/L	0.5	1			EPA 300.0	06/04/21 00:51		HB

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Project:	Surface Water	**Sample Description:**	204-surf
Lab Code:	H003200-20	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 17:09	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**8.2**	mg/L	0.5	1			EPA 300.0	06/04/21 01:09		HB

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Project:	Surface Water	**Sample Description:**	204-mid
Lab Code:	H003200-21	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 17:13	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**7.4**	mg/L	0.5	1			EPA 300.0	06/04/21 01:27		HB

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Project:	Surface Water	**Sample Description:**	204-deep
Lab Code:	H003200-22	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/01/2021 17:17	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**7.6**	mg/L	0.5	1			EPA 300.0	06/04/21 02:20		HB

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Project:	Surface Water	**Sample Description:**	Bottle blank
Lab Code:	H003200-23	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 07:25	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/04/21 02:38		HB

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Project:	Surface Water	**Sample Description:**	Equip. Blank -VD
Lab Code:	H003200-24	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 07:30	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/04/21 03:32		HB

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Project:	Surface Water	**Sample Description:**	Equip. Blank- I
Lab Code:	H003200-25	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 07:35	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/04/21 03:50		HB

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Project:	Surface Water	**Sample Description:**	303
Lab Code:	H003200-26	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 08:05	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**16.3**	mg/L	0.5	1			EPA 300.0	06/04/21 04:08		HB

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Project:	Surface Water	**Sample Description:**	S009-182
Lab Code:	H003200-27	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 08:19	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**14.0**	mg/L	0.5	1			EPA 300.0	06/04/21 04:25		HB

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Project:	Surface Water	**Sample Description:**	202-surf
Lab Code:	H003200-28	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 08:38	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.6**	mg/L	0.5	1			EPA 300.0	06/04/21 04:43		HB

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Project:	Surface Water	**Sample Description:**	202-mid
Lab Code:	H003200-29	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 08:41	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.7**	mg/L	0.5	1			EPA 300.0	06/04/21 05:01		HB

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Project:	Surface Water	**Sample Description:**	202-deep
Lab Code:	H003200-30	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 08:48	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.8**	mg/L	0.5	1			EPA 300.0	06/04/21 14:11		HB

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Project:	Surface Water	**Sample Description:**	203-surf
Lab Code:	H003200-31	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:09	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**12.0**	mg/L	0.5	1			EPA 300.0	06/04/21 14:28		HB

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Project:	Surface Water	**Sample Description:**	203-mid
Lab Code:	H003200-32	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:11	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.4**	mg/L	0.5	1			EPA 300.0	06/07/21 14:05		HB

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Project:	Surface Water	**Sample Description:**	203-deep
Lab Code:	H003200-33	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:18	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/07/21 14:59		HB

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Project:	Surface Water	**Sample Description:**	203-deep-FD
Lab Code:	H003200-34	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:19	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.4**	mg/L	0.5	1			EPA 300.0	06/07/21 15:16		HB

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Project:	Surface Water	**Sample Description:**	503-surf
Lab Code:	H003200-35	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:51	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.6**	mg/L	0.5	1			EPA 300.0	06/07/21 15:34		HB

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Project:	Surface Water	**Sample Description:**	503-mid
Lab Code:	H003200-36	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:54	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.2**	mg/L	0.5	1			EPA 300.0	06/07/21 15:52		HB

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Project:	Surface Water	**Sample Description:**	503-deep
Lab Code:	H003200-37	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 09:57	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/07/21 16:10		HB

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Project:	Surface Water	**Sample Description:**	BL-002-surf
Lab Code:	H003200-38	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 10:15	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.7**	mg/L	0.5	1			EPA 300.0	06/07/21 16:28		HB

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Project:	Surface Water	**Sample Description:**	BL-002-mid
Lab Code:	H003200-39	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 10:18	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/07/21 16:46		HB

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Project:	Surface Water	**Sample Description:**	BL-002-Deep
Lab Code:	H003200-40	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 10:24	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.2**	mg/L	0.5	1			EPA 300.0	06/07/21 17:39		HB

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Project:	Surface Water	**Sample Description:**	BL-003-surf
Lab Code:	H003200-41	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 10:39	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/07/21 18:33		HB

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Project:	Surface Water	**Sample Description:**	BL-003- mid
Lab Code:	H003200-42	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 10:43	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.5**	mg/L	0.5	1			EPA 300.0	06/07/21 18:51		HB

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Project:	Surface Water	**Sample Description:**	BL-003-deep
Lab Code:	H003200-43	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 10:46	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.0**	mg/L	0.5	1			EPA 300.0	06/07/21 19:08		HB

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Laboratory Results
June 08, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-001-surf
Lab Code:	H003200-44	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 11:06	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.4**	mg/L	0.5	1			EPA 300.0	06/07/21 19:26		HB

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Bill To: Save the Boundary Waters
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206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-001-mid
Lab Code:	H003200-45	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 11:08	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.7**	mg/L	0.5	1			EPA 300.0	06/07/21 19:44		HB

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June 08, 2021

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-001-mid-FD
Lab Code:	H003200-46	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 11:09	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/07/21 20:02		HB

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-001-deep
Lab Code:	H003200-47	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/02/2021 11:18	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/03/2021 08:35		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/07/21 20:20		HB

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Qualifiers and Definitions

Item	Definition
RL	Reporting Limit (Corrected for dilution factor when applicable due to sample preparation variation.)
DF	Dilution Factor
HB	Indicates test performed by RMB Environmental Laboratories - Hibbing.

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CHAIN OF CUSTODY RECORD

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WQLS Exhibit 46
Wind Rice

Client: Save the Boundary Waters / Northeastern Minnesotans for Wilderness | Phone #: | Fax #:
Project Name: Sulfate rd 2 | Project Task Code: | PO/WO #:
Sampler: (print name) Lisa Pugh | Sampler Phone #: 952-237-6714
Report to: Lisa Pugh | Bill to: STBW
Report to Email: lisa@savetheboundarywaters.org | Bill to Email: nicole@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

H003200 Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Analyses Requested: Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
01	Equip. Blank - VD	6/1/21	1357	1	QCBLANK			QC-EB	QC BLANK Wtr-surf			X	
02	BB-001	6/1/21	1401	1	LKDEPTH	0.5	0.5	Sample	Wtr-surf			X	
03	Bottle Blank	6/1/21	1410	1	QCBLANK			BC-FB	QCBLANK			X	
04	301	6/1/21	1423	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
05	BB-003	6/1/21	1436	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
06	BB-003-FD	6/1/21	1437	1	LKDEPTH	1	1	QC-FR	Wtr-surf			X	
07	Equip. Blank - I	6/1/21	1502	1	QCBLANK			QC-EB	QCBLANK			X	
08	BL-004-surf	6/1/21	1547	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
09	BL-004-mid	6/1/21	1550	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	
10	BL-004-deep	6/1/21	1556	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	
11	BL-004-deep-FD	6/1/21	1557	1	LKDEPTH	5.5	5.5	QC-FR	Wtr-surf			X	
12	BL-005-surf	6/1/21	1520	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
13	BL-005-mid	6/1/21	1522	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature) | Print Name: Lisa Pugh | Date: 6/3/21 | Time: 0837
Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature) | Date: 6/5/21 | Time: 0935
Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp: 2.1 °C Therm. ID: LTG HB1F3
☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes (N/A)

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: STPW / NMW | Phone #: | Fax #: | ☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Project Name: Sulfate rd 2 | Project Task Code: | PO/WO #: | Analyses Requested | H003200

Sampler: (print name) Lisa Pugh | Sampler Phone #: | Order

Report to: | Bill to:

Report to Email: | Bill to Email:

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
14	BL-005-deep	6/1/21	1527	1	LKDEPTH	5.5	5.5	Sample	Wtr surf			X	
15	BB-002-surf	6/1/21	1614	1	LKSURF2M	0	2	Sample	Wtr surf			X	
16	BB-002-deep	6/1/21	1620	1	LKDEPTH	3	3	Sample	Wtr surf			X	
17	502-surf	6/1/21	1639	1	LKSURF2M	0	2	Sample	Wtr surf			X	
18	502-mid	6/1/21	1642	1	LKDEPTH	3	3	Sample	Wtr surf			X	
19	502-deep	6/1/21	1647	1	LKDEPTH	5	5	Sample	Wtr surf			X	
20	204-surf	6/1/21	1709	1	LKSURF2M	0	2	Sample	Wtr surf			X	
21	204-mid	6/1/21	1713	1	LKDEPTH	4	4	Sample	Wtr surf			X	
22	204-deep	6/1/21	1717	1	LKDEPTH	8	8	Sample	Wtr surf			X	
23	Bottle blank	6/2/21	0725	1	QCBLANK			QC-FB	QC-BLANK			X	
24	Equip. Blank-VJ	6/2/21	0730	1	QCBLANK			QC-EB	QC-BLANK			X	
25	Equip. Blank-I	6/2/21	0735	1	QCBLANK			QC-EB	QC-BLANK			X	
26	303	6/2/21	0805	1	LKDEPTH	1	1	Sample	Wtr surf			X	

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_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature) | Print Name: Lisa Pugh | Date 6/3/21 | Time 0837 | Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature) | Date 6/3/21 | Time 0835 | Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp 2.1 °C Therm. ID: LTG HBIFS

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes (N/A)

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

ED_013135_00003520-00141

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

WQLS Exhibit G

Client: STBW/NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Sulfate rd 2	Project Task Code:	PO/WO #:	Analyses Requested: Sulfate
Sampler: (print name) Lisa Pugh	Sampler Phone #:		H003200 Order
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
27	S009-182	6/2/21	0819	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
26	202-surf	6/2/21	0838	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
29	202-mid	6/2/21	0841	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
30	202-deep	6/2/21	0848	1	LKDEPTH	6.5	6.5	Sample	Wtr-surf			X	
31	203-surf	6/2/21	0909	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
32	203-mid	6/2/21	0911	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	
33	203-deep	6/2/21	0918	1	LKDEPTH	5	5	Sample	Wtr-surf			X	
34	203-deep-FD	6/2/21	0919	1	LKDEPTH	5	5	QC-FR	Wtr-surf			X	
35	503-surf	6/2/21	0951	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
36	503-mid	6/2/21	0954	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
37	503-deep	6/2/21	0957	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
38	BL-002-surf	6/2/21	1015	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
39	BL-002-mid	6/2/21	1018	1	~~LK~~DEPTH	4	4	Sample	Wtr-surf			X	

Page 52 of 53

_____ (initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pugh	6/3/21	0837	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

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Received by Lab: (signature)	Date	Time	Additional Fees: Mileage:	Field Staff:	Shipping:	Courier:	Equipment:	Other:
	6/3/21	0835						

☒ DOES meet proper sample storage and transportation guidelines ~~☒~~ Received on ice ☐ Received at room temperature Received Temp: 2.1 °C Therm. ID: LTG #S263

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes (N/A)

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

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CHAIN OF CUSTODY RECORD

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Client: STBW/NMW	Phone #:	Fax #:	❑ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Sulfate rd 2	Project Task Code:	PO/WO #:	Analyses Requested
Sampler: (print name) Lisa Pugh	Sampler Phone #:		H003200 Order
Report to:	Bill to:		
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
40	BL-002-Deep	6/2/21	1024	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
41	BL-003-Surf	6/2/21	1039	1	LKSURFZM	0	2	Sample	Wtr-surf			X	
42	BL-003-mid	6/2/21	1043	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
43	BL-003-deep	6/2/21	1046	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
44	BL-001-surf	6/2/21	1106	1	LKSURFZM	0	2	Sample	Wtr-surf			X	
45	BL-001-mid	6/2/21	1108	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
46	BL-001-mid FD	6/2/21	1109	1	LKDEPTH	4	4	~~Sample~~ QCFR	Wtr-surf			X	
47	BL-001-deep	6/2/21	1118	1	LKDEPTH	6	6	Sample	Wtr-surf			X	

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_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C. (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pugh	6/3/21	0837	❑ Speedee ❑ UPS ❑ USPS ❑ FedEx ❑ Courier ❑ RMB Courier ☒ Hand Delivery

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Received by Lab: (signature)	Date	Time	Additional Fees: Mileage	Field Staff	Shipping	Courier	Equipment	Other
	6/3/21	0835						

☒ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp: 2.1 °C Therm. ID: LTG #BJ23

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes (N/A)

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

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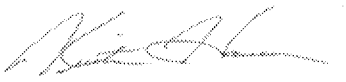
June 14, 2021
Laboratory Report

Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN 55731

RE: Surface Water
Work Order :H003246

Enclosed are the results of analyses for samples received by the laboratory on 06/08/2021 11:20. If you have any questions concerning this report, please feel free to contact me at (218) 440-2043.

Report approved by:



Kristin Hanson
Project Manager
Kristin.Hanson@rmbel.info

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Laboratory Results
June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	Bottle Blank
Lab Code:	H003246-01	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 05:34	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/08/21 17:05		HB

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Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
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206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	Equip. Blank -VD
Lab Code:	H003246-02	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 06:56	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/08/21 17:58		HB

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Laboratory Results
June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	Equip. Blank- IS
Lab Code:	H003246-03	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 07:00	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/08/21 18:16		HB

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Laboratory Results
June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
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Project:	Surface Water	**Sample Description:**	204-surf
Lab Code:	H003246-04	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 07:31	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**8.1**	mg/L	0.5	1			EPA 300.0	06/08/21 18:34		HB

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Project:	Surface Water	**Sample Description:**	204-mid
Lab Code:	H003246-05	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 07:33	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**6.9**	mg/L	0.5	1			EPA 300.0	06/08/21 18:52		HB

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Project:	Surface Water	**Sample Description:**	204-deep
Lab Code:	H003246-06	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 07:36	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**6.1**	mg/L	0.5	1			EPA 300.0	06/08/21 19:10		HB

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Project:	Surface Water	**Sample Description:**	502-surf
Lab Code:	H003246-07	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:00	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.2**	mg/L	0.5	1			EPA 300.0	06/08/21 19:28		HB

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Project:	Surface Water	**Sample Description:**	502-mid
Lab Code:	H003246-08	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:02	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.0**	mg/L	0.5	1			EPA 300.0	06/08/21 20:21		HB

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Project:	Surface Water	**Sample Description:**	502-deep
Lab Code:	H003246-09	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:05	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**8.9**	mg/L	0.5	1			EPA 300.0	06/08/21 21:15		HB

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Project:	Surface Water	**Sample Description:**	BL-005-surf
Lab Code:	H003246-10	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:24	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.2**	mg/L	0.5	1			EPA 300.0	06/08/21 21:33		HB

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Project:	Surface Water	**Sample Description:**	BL-005-mid
Lab Code:	H003246-11	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:26	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.9**	mg/L	0.5	1			EPA 300.0	06/08/21 21:50		HB

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Project:	Surface Water	**Sample Description:**	BL-005-deep
Lab Code:	H003246-12	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:31	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.3**	mg/L	0.5	1			EPA 300.0	06/08/21 22:08		HB

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Project:	Surface Water	**Sample Description:**	BL-005-deep FD
Lab Code:	H003246-13	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:32	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.0**	mg/L	0.5	1			EPA 300.0	06/08/21 22:26		HB

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Project:	Surface Water	**Sample Description:**	BB-002-surf
Lab Code:	H003246-14	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:50	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.4**	mg/L	0.5	1			EPA 300.0	06/08/21 22:44		HB

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Project:	Surface Water	**Sample Description:**	BB-002-deep
Lab Code:	H003246-15	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 08:52	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.9**	mg/L	0.5	1			EPA 300.0	06/08/21 23:02		HB

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Project:	Surface Water	**Sample Description:**	BB-003
Lab Code:	H003246-16	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 09:14	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**22.1**	mg/L	0.5	1			EPA 300.0	06/08/21 23:55		HB

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Project:	Surface Water	**Sample Description:**	301
Lab Code:	H003246-17	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 09:23	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**28.3**	mg/L	0.5	1			EPA 300.0	06/09/21 00:49		HB

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Project:	Surface Water	**Sample Description:**	BB-001
Lab Code:	H003246-18	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 09:38	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**57.1**	mg/L	0.5	1			EPA 300.0	06/09/21 01:07		HB

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Project:	Surface Water	**Sample Description:**	BB-001-FD
Lab Code:	H003246-19	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 09:39	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**65.1**	mg/L	0.5	1			EPA 300.0	06/09/21 01:25		HB

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Project:	Surface Water	**Sample Description:**	BL-004-Surf
Lab Code:	H003246-20	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 09:57	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.0**	mg/L	0.5	1			EPA 300.0	06/09/21 01:42		HB

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Project:	Surface Water	**Sample Description:**	BL-004-Mid
Lab Code:	H003246-21	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 10:00	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.7**	mg/L	0.5	1			EPA 300.0	06/09/21 02:00		HB

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Project:	Surface Water	**Sample Description:**	BL-004-deep
Lab Code:	H003246-22	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 10:04	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.3**	mg/L	0.5	1			EPA 300.0	06/09/21 02:18		HB

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Project:	Surface Water	**Sample Description:**	303
Lab Code:	H003246-23	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 10:34	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**13.9**	mg/L	0.5	1			EPA 300.0	06/09/21 02:36		HB

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Project:	Surface Water	**Sample Description:**	S009-182
Lab Code:	H003246-24	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 10:47	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/09/21 11:43		HB

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Project:	Surface Water	**Sample Description:**	202-surf
Lab Code:	H003246-25	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:04	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 12:37		HB

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Project:	Surface Water	**Sample Description:**	202-mid
Lab Code:	H003246-26	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:06	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.2**	mg/L	0.5	1			EPA 300.0	06/09/21 12:55		HB

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Project:	Surface Water	**Sample Description:**	202-deep
Lab Code:	H003246-27	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:12	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 13:13		HB

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Project:	Surface Water	**Sample Description:**	203-surf
Lab Code:	H003246-28	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:28	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.4**	mg/L	0.5	1			EPA 300.0	06/09/21 13:31		HB

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Project:	Surface Water	**Sample Description:**	203-surf-FD
Lab Code:	H003246-29	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:29	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 13:48		HB

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Project:	Surface Water	**Sample Description:**	203-mid
Lab Code:	H003246-30	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:32	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/09/21 14:06		HB

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Project:	Surface Water	**Sample Description:**	203-deep
Lab Code:	H003246-31	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:36	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/09/21 15:00		HB

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Project:	Surface Water	**Sample Description:**	BL-001-surf
Lab Code:	H003246-32	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:52	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.2**	mg/L	0.5	1			EPA 300.0	06/09/21 15:53		HB

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Project:	Surface Water	**Sample Description:**	BL-001-mid
Lab Code:	H003246-33	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:54	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 16:11		HB

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Project:	Surface Water	**Sample Description:**	BL-001-deep
Lab Code:	H003246-34	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 11:54	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**12.2**	mg/L	0.5	1			EPA 300.0	06/09/21 16:29		HB

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Project:	Surface Water	**Sample Description:**	503-surf
Lab Code:	H003246-35	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:11	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.2**	mg/L	0.5	1			EPA 300.0	06/09/21 16:47		HB

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Project:	Surface Water	**Sample Description:**	503-surf-FD
Lab Code:	H003246-36	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:12	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.4**	mg/L	0.5	1			EPA 300.0	06/09/21 17:05		HB

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Project:	Surface Water	**Sample Description:**	503-mid
Lab Code:	H003246-37	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:14	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.5**	mg/L	0.5	1			EPA 300.0	06/09/21 17:23		HB

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Project:	Surface Water	**Sample Description:**	503-deep
Lab Code:	H003246-38	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:17	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 17:40		HB

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Project:	Surface Water	**Sample Description:**	BL-002-surf
Lab Code:	H003246-39	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:34	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 18:34		HB

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Project:	Surface Water	**Sample Description:**	BL-002-mid
Lab Code:	H003246-40	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:38	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.9**	mg/L	0.5	1			EPA 300.0	06/09/21 19:27		HB

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Project:	Surface Water	**Sample Description:**	BL-002-Deep
Lab Code:	H003246-41	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 12:42	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.1**	mg/L	0.5	1			EPA 300.0	06/09/21 19:45		HB

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Project:	Surface Water	**Sample Description:**	BL-003-surf
Lab Code:	H003246-42	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 13:02	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.6**	mg/L	0.5	1			EPA 300.0	06/09/21 20:03		HB

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Project:	Surface Water	**Sample Description:**	BL-003- mid
Lab Code:	H003246-43	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 13:04	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.0**	mg/L	0.5	1			EPA 300.0	06/09/21 20:21		HB

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Hibbing, MN 55746
218-440-2043

Laboratory Results
June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-003-deep
Lab Code:	H003246-44	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 13:07	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.1**	mg/L	0.5	1			EPA 300.0	06/09/21 20:39		HB

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Laboratory Results
June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
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Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-006-surf
Lab Code:	H003246-45	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 13:24	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**11.3**	mg/L	0.5	1			EPA 300.0	06/09/21 20:57		HB

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Laboratory Results
June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-006-mid
Lab Code:	H003246-46	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 13:28	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**10.1**	mg/L	0.5	1			EPA 300.0	06/09/21 21:15		HB

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June 14, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water	**Sample Description:**	BL-006-deep
Lab Code:	H003246-47	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/07/2021 13:33	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/08/2021 11:20		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Anions by IC										
Sulfate as SO4	**9.3**	mg/L	0.5	1			EPA 300.0	06/09/21 22:08		HB

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Qualifiers and Definitions

Item	Definition
RL	Reporting Limit (Corrected for dilution factor when applicable due to sample preparation variation.)
DF	Dilution Factor
HB	Indicates test performed by RMB Environmental Laboratories - Hibbing.

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CHAIN OF CUSTODY RECORD

Page 1 of 4

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

WQLS Exhibit 66

Client: Save the Boundary Waters | Phone #: | Fax #:

Project Name: Sulfate rd 3 | Project Task Code: | PO/WO #:

Sampler: (print name) Lisa Pugh | Sampler Phone #: 952-237-6714

Report to: Lisa Pugh | Bill to: Northeastern Minnesotans for Wilderness

Report to Email: lisa@savetheboundarywaters.org | Bill to Email: nicole@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

H003246

Analyses Requested

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
01	Bottle Blank	6/7/21	0534	1	QC-BLANK			QC-FB	QC-BLANK			X	
02	Equip Blank - VD	6/7/21	0536	1	QC BLANK			QC-EB	QC-BLANK			X	
03	Equip Blank - IS	6/7/21	0700	1	QC-BLANK			QC-EB	QC-BLANK			X	
04	204 - surf	6/7/21	0731	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
05	204 - mid	6/7/21	0735	1	LKDEPTH	5	5	Sample	Wtr-surf			X	
06	204 - deep	6/7/21	0736	1	LKDEPTH	8	8	Sample	Wtr-surf			X	
07	502 - surf	6/7/21	0800	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
08	502 - mid	6/7/21	0802	1	LKDEPTH	35	35	Sample	Wtr-surf			X	
09	502 - deep	6/7/21	0805	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	
10	BL005-surf	6/7/21	0824	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
11	BL-005-mid	6/7/21	0826	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	
12	BL-005-deep	6/7/21	0831	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	
13	BL-005-deep FD	6/7/21	0832	1	LKDEPTH	5.5	5.5	QC-FR	Wtr-surf			X	

Page 50 of 53

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pugh	6/8/21	1120	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier X Hand Delivery

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Received by Lab: (signature)	Date	Time	Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:
	6/8/21	1120	

X DOES meet proper sample storage and transportation guidelines ☐ Does NOT meet proper sample storage and transportation guidelines

X Received on ice ☐ Received at room temperature ☐ Samples received same day as collection

Received Temp: 0.3 °C Therm. ID: LTG HB123

Chlorine: No Yes (N/A)

Comments: _____

VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Wild Rice WQLS Exhibit 163

Client: STPW/NMW | Phone #: | Fax #: | ☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Project Name: Sulfate rd 3 | Project Task Code: | PO/WO #: | Analyses Requested | H003246

Sampler: (print name) Lisa Pugh | Sampler Phone #: | Order

Report to: | Bill to:

Report to Email: | Bill to Email:

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
14	BB-002-surf	6/7/21	0850	1	LKSURFZM	0	2	Sample	Wtr-surf			X	
15	BB-002-deep	6/7/21	0852	1	LKDEPTH	3	3	Sample	Wtr-surf			X	
16	BB-003	6/7/21	0914	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
17	301	6/7/21	0923	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
18	BB-001	6/7/21	0938	1	LKDEPTH	0.5	0.5	Sample	Wtr-surf			X	
19	BB-001-FD	6/7/21	0939	1	LKDEPTH	0.5	0.5	QC-FR	Wtr-surf			X	
20	BL-004-surf	6/7/21	0957	1	LKSURFZM	0	2	Sample	Wtr-surf			X	
21	BL-004-mid	6/7/21	1000	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
22	BL-004-deep	6/7/21	1004	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	
23	303	6/7/21	1034	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
24	S009-182	6/7/21	1047	1	LKDEPTH	1	1	Sample	Wtr-surf			X	
25	202-surf	6/7/21	1104	1	LKSURFZM	0	2	Sample	Wtr-surf			X	
26	202-mid	6/7/21	1100	1	LKDEPTH	4.5	4.5	Sample	Wtr-surf			X	

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature) | Print Name: Lisa Pugh | Date 6/8/21 | Time 1120

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

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Received by Lab: (signature) | Date 6/8/21 | Time 1120

Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp: 0.3 °C Therm. ID: LTG 4B163

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes (N/A)

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

Wild Rice WQLS, Exhibit G

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: STBW / NMW
Project Name: Sulfate rd 3
Sampler: (print name) Lisa Pugh
Report to:
Report to Email:
Phone #:
Project Task Code:
Sampler Phone #:
Bill to:
Bill to Email:
Fax #:
PO/WO #:

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

Analyses Requested — H003246

Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
27	202 - deep	6/7/21	1112	1	LKDEPTH	6.5	6.5	Sample	Wtr-surf			X	
28	203 - surf	6/7/21	1128	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
29	203 - surf FD	6/7/21	1129	1	LKSURF2M	0	2	QC-FR	Wtr-surf			X	
30	203 - mid	6/7/21	1132	1	LKDEPTH	3.5	3.5	Sample	Wtr-surf			X	
31	203 - deep	6/7/21	1136	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	
32	BL-001-surf	6/7/21	1152	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
33	BL-001-mid	6/7/21	1154	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
34	BL-001-deep	6/7/21	1158	1	LKDEPTH	6.5	6.5	Sample	Wtr-surf			X	
35	503 - surf	6/7/21	1211	1	LKSURF2M	0	2	Sample	Wtr-surf			X	
36	503 - surf - FD	6/7/21	1212	1	LKSURF2M	0	2	QC-FR	Wtr-surf			X	
37	503 - mid	6/7/21	1214	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
38	503 - deep	6/7/21	1217	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
39	BL-002-surf	6/7/21	1234	1	LKSURF2M	0	2	Sample	Wtr-surf			X	

_______ (Initials) in the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

_______ (Initials) in the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _______ before processing samples.

Relinquished by: (client signature) [signature] Print Name: Lisa Pugh Date: 6/8/21 Time: 1120

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

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Received by Lab: (signature) [signature] Date: 6/8/21 Time: 1120

Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ DOES meet proper sample storage and transportation guidelines
☐ Does NOT meet proper sample storage and transportation guidelines
☒ Received on ice ☐ Received at room temperature
☐ Samples received same day as collection
Received Temp: 0.3 °C Therm. ID: LTG HBIR3
Chlorine: No Yes (N/A)

Comments: _______

VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

WQLS Exhibit 66

Client: STBW/NMW	Phone #:	Fax #:	☐ "EQUIS" EDD Lab Format - MPCA Data Submittal
Project Name: Sulfate Rd 3	Project Task Code:	PO/WO #:	Analyses Requested
Sampler: (print name) Lisa Pugh	Sampler Phone #:		H003246
Report to:	Bill to:		Work Order
Report to Email:	Bill to Email:		

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Sulfate	Sample Comments: (Equipment Type, Filtration, AIS, Preservation)
40	BL-002 mid	6/7/21	1238	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
41	BL-002-deep	6/7/21	1242	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
42	BL-003-surf	6/7/21	1302	1	LKSURFCM	0	2	Sample	Wtr-surf			X	
43	BL-003-mid	6/7/21	1304	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
44	BL-003-deep	6/7/21	1307	1	LKDEPTH	6	6	Sample	Wtr-surf			X	
45	BL-006-surf	6/7/21	1324	1	LKSURFCM	0	2	Sample	Wtr-surf			X	
46	BL-006-mid	6/7/21	1328	1	LKDEPTH	4	4	Sample	Wtr-surf			X	
47	BL-006-deep	6/7/21	1333	1	LKDEPTH	5.5	5.5	Sample	Wtr-surf			X	

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_____ (Initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # _____ before processing samples.

Relinquished by: (client signature)	Print Name:	Date	Time	Shipping to Lab:
	Lisa Pugh	6/8/21	1120	☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

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Received by Lab: (signature)	Date	Time	Additional Fees: Mileage:	Field Staff:	Shipping:	Courier:	Equipment:	Other:
	6/8/21	1120						

☒ DOES meet proper sample storage and transportation guidelines ☒ Received on ice ☐ Received at room temperature Received Temp: 0.3 °C Therm. ID: LTG #8183

☐ Does NOT meet proper sample storage and transportation guidelines ☐ Samples received same day as collection Chlorine: No Yes (N/A)

Comments: _____ VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)

ED_013135_00003520-00196

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Hibbing, MN 55746
218-440-2043

June 24, 2021
Laboratory Report

Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN 55731

RE: Surface Water (Metals to MDL)
Work Order :H003344

Enclosed are the results of analyses for samples received by the laboratory on 06/16/2021 09:05. If you have any questions concerning this report, please feel free to contact me at (218) 440-2043.

Report approved by:

Kristin Hanson
Project Manager
Kristin.Hanson@rmbel.info

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Laboratory Results
June 24, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	Bottle Blank
Lab Code:	H003344-01	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/15/2021 05:44	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/16/2021 09:05		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Organic Carbon										
Dissolved Organic Carbon	**< 1.0**	mg/L	1.0	1			SM5310C - 2011	06/18/21 12:07		BL
Classical Chemistry Parameters										
Alkalinity, Total (as CaCO3)	**< 1.00**	mg/L	1.00	1			SM2320 B-2011	06/18/21 09:04		HB
Chlorophyll-a, Pheophytin Corrected	**< 1.00**	ug/L	1.00				SM10200H-2011	06/21/21 15:08	nc	DL
Phosphorus, Total as P	**< 0.003**	mg/L	0.003	1	EPA 365.3	06/17/21 14:23	EPA 365.3	06/18/21 15:49		DL
Anions by IC										
Chloride	**< 0.50**	mg/L	0.50	1			EPA 300.0	06/16/21 16:01		HB
Nitrate as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 16:01		HB
Nitrite as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 16:01		HB
Bromide	**< 0.1**	mg/L	0.1	1			EPA 300.0	06/16/21 16:01		HB
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/16/21 16:01		HB

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Laboratory Results
June 24, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	Equipment Blank -IS
Lab Code:	H003344-02	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/15/2021 05:48	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/16/2021 09:05		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Organic Carbon										
Dissolved Organic Carbon	**< 1.0**	mg/L	1.0	1			SM5310C - 2011	06/18/21 12:25		BL
Classical Chemistry Parameters										
Alkalinity, Total (as CaCO3)	**< 1.00**	mg/L	1.00	1			SM2320 B-2011	06/18/21 09:07		HB
Chlorophyll-a, Pheophytin Corrected	**< 1.04**	ug/L	1.04				SM10200H-2011	06/21/21 15:08	nc	DL
Phosphorus, Total as P	**< 0.003**	mg/L	0.003	1	EPA 365.3	06/17/21 14:23	EPA 365.3	06/18/21 15:49		DL
Anions by IC										
Chloride	**< 0.50**	mg/L	0.50	1			EPA 300.0	06/16/21 16:55		HB
Nitrate as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 16:55		HB
Nitrite as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 16:55		HB
Bromide	**< 0.1**	mg/L	0.1	1			EPA 300.0	06/16/21 16:55		HB
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/16/21 16:55		HB

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2200 West 94th Street
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Detroit Lakes
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Detroit Lakes, MN 56501
218-846-1465

Hibbing
1111 7th Ave. E.
Hibbing, MN 55746
218-440-2043

Laboratory Results
June 24, 2021

Report To: Save the Boundary Waters
Lisa Pugh
206 E Sheridan St
Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	Equipment Blank -VD
Lab Code:	H003344-03	**Collection Method:**	QC-BLANK
Matrix:	QC-BLANK	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/15/2021 05:52	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/16/2021 09:05		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Organic Carbon										
Dissolved Organic Carbon	**< 1.0**	mg/L	1.0	1			SM5310C - 2011	06/18/21 12:44		BL
Classical Chemistry Parameters										
Alkalinity, Total (as CaCO3)	**< 1.00**	mg/L	1.00	1			SM2320 B-2011	06/18/21 09:10		HB
Chlorophyll-a, Pheophytin Corrected	**< 1.04**	ug/L	1.04				SM10200H-2011	06/21/21 15:08	nc	DL
Phosphorus, Total as P	**< 0.003**	mg/L	0.003	1	EPA 365.3	06/17/21 14:23	EPA 365.3	06/18/21 15:49		DL
Anions by IC										
Chloride	**< 0.50**	mg/L	0.50	1			EPA 300.0	06/16/21 17:12		HB
Nitrate as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 17:12		HB
Nitrite as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 17:12		HB
Bromide	**< 0.1**	mg/L	0.1	1			EPA 300.0	06/16/21 17:12		HB
Sulfate as SO4	**< 0.5**	mg/L	0.5	1			EPA 300.0	06/16/21 17:12		HB

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Project:	Surface Water (Metals to MDL)	**Sample Description:**	504-surf
Lab Code:	H003344-04	**Collection Method:**	LKSURF2M
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/15/2021 09:05	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/16/2021 09:05		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Organic Carbon										
Dissolved Organic Carbon	**11.1**	mg/L	1.0	1			SM5310C - 2011	06/18/21 13:05		BL
Classical Chemistry Parameters										
Alkalinity, Total (as CaCO3)	**36.0**	mg/L	1.00	1			SM2320 B-2011	06/18/21 09:12		HB
Chlorophyll-a, Pheophytin Corrected	**3.06**	ug/L	1.04				SM10200H-2011	06/21/21 15:08	nc	DL
Phosphorus, Total as P	**0.017**	mg/L	0.003	1	EPA 365.3	06/17/21 14:23	EPA 365.3	06/18/21 15:49		DL
Anions by IC										
Chloride	**6.22**	mg/L	0.50	1			EPA 300.0	06/16/21 17:30		HB
Nitrate as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 17:30		HB
Nitrite as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 17:30		HB
Bromide	**< 0.1**	mg/L	0.1	1			EPA 300.0	06/16/21 17:30		HB
Sulfate as SO4	**11.1**	mg/L	0.5	1			EPA 300.0	06/16/21 17:30		HB

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Ely, MN, 55731

Bill To: Save the Boundary Waters
NE Minnesotans for Wilderness
206 E Sheridan St
Ely, MN, 55731

Project:	Surface Water (Metals to MDL)	**Sample Description:**	504-deep
Lab Code:	H003344-05	**Collection Method:**	LKDEPTH
Matrix:	Wtr-Surf	**Sampled by:**	Lisa Pugh
Date/Time Sampled:	06/15/2021 09:07	**Sample Receipt Information**	See chain of custody.
Date/Time Received:	06/16/2021 09:05		

Analyte	Result	Units	Sample RL	DF	Preparation Method	Prepared	Analysis Method	Analyzed	Analyte Qualifiers	Facility
Organic Carbon										
Dissolved Organic Carbon	**13.0**	mg/L	1.0	1			SM5310C - 2011	06/18/21 14:38		BL
Classical Chemistry Parameters										
Alkalinity, Total (as CaCO3)	**32.0**	mg/L	1.00	1			SM2320 B-2011	06/18/21 09:15		HB
Phosphorus, Total as P	**0.017**	mg/L	0.003	1	EPA 365.3	06/17/21 14:23	EPA 365.3	06/18/21 15:49		DL
Anions by IC										
Chloride	**6.25**	mg/L	0.50	1			EPA 300.0	06/16/21 17:48		HB
Nitrate as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 17:48		HB
Nitrite as N	**< 0.03**	mg/L	0.03	1			EPA 300.0	06/16/21 17:48		HB
Bromide	**< 0.1**	mg/L	0.1	1			EPA 300.0	06/16/21 17:48		HB
Sulfate as SO4	**11.2**	mg/L	0.5	1			EPA 300.0	06/16/21 17:48		HB

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CHAIN OF CUSTODY RECORD

Electronic version available at http://www.rmbel.info/lab/chains-of-custody/

Client: Save the Boundary Waters | Phone #: | Fax #:
Project Name: Routine rd. 1 | Project Task Code: | PO/WO #:
Sampler: (print name) Lisa Pugh | Sampler Phone #: 952-237-6714
Report to: Lisa Pugh | Bill to: Northeastern Minnesotans for Wilderness
Report to Email: lisa@savetheboundarywaters.org | Bill to Email: lisa@savetheboundarywaters.org

☐ "EQUIS" EDD Lab Format - MPCA Data Submittal

H003344

Order

Sample Number	Station ID/Sample Description	Date	Time	# of Bottles	Sample Method	Start Depth (m)	End Depth (m)	Sample Type	Matrix	Preserved at Collection	Preserved at Lab Receipt	Cations	Anions	Gen. Chem	TP	Chloro-A	Sample Comments (Equipment Type, Filtration, AIS, Preservation)
01	Bottle Blank	6/15/21	0544	4	QC BLANK			QC BLANK	QC-FB	X		X	X	X	X	X	See attached
02	Equipment Blank-IS	6/15/21	0548	4	QC BLANK			QC BLANK	QC-EB	X		X	X	X	X	X	lab list
03	Equipment Blank-VD	6/15/21	0552	4	QC BLANK			QC BLANK	QC-EB	X		X	X	X	X	X	for
04	504-surf	6/15/21	0905	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	cation
05	504-deep	6/15/21	0907	3	LKDEPTH	5.5	5.5	Sample	Wtr-surf	X		X	X	X	X		anion
06	XXX-surf	6/15/21	0940	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	gen
07	XXX-deep	6/15/21	0942	3	LKDEPTH	6	6	Sample	Wtr-surf	X		X	X	X	X		chem
08	503-surf	6/15/21	1020	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	analytes
09	503-deep	6/15/21	1022	3	LKDEPTH	5.5	5.5	Sample	Wtr-surf	X		X	X	X	X		
10	101-surf	6/15/21	1104	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	
11	101-deep	6/15/21	1107*	3	LKDEPTH	5	5	Sample	Wtr-surf	X		X	X	X	X		
12	204-surf	6/15/21	1150*	4	LKSURF2M	0	2	Sample	Wtr-surf	X		X	X	X	X	X	
13	204-deep	6/15/21	1157*	3	LKDEPTH	7.5	7.5	Sample	Wtr-surf	X		X	X	X	X		

______ (initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) I hereby authorize RMB Environmental Laboratories to process the samples as received.

______ (initials) In the event that samples are received by the lab at a temperature greater than 6° C, (10° C for micro) please contact client at phone # ______ before processing samples.

Relinquished by: (client signature) [signature] | Print Name: Rajan Singh | Date: 6/16/21 | Time: 09:00

Shipping to Lab: ☐ Speedee ☐ UPS ☐ USPS ☐ FedEx ☐ Courier ☐ RMB Courier ☒ Hand Delivery

FOR LAB USE ONLY

Received by Lab: (signature) [signature] | Date: 6/16/21 | Time: 0905

Additional Fees: Mileage: Field Staff: Shipping: Courier: Equipment: Other:

☒ **DOES** meet proper sample storage and transportation guidelines
☐ Does **NOT** meet proper sample storage and transportation guidelines

☒ Received on ice ☐ Received at room temperature
☐ Samples received same day as collection

Received Temp: 4.7 / 4.4 °C Therm. ID: LTC HS-IE3

Chlorine: No Yes (N/A)

Comments: 2 coolers *per bottles. JWP 6/16/21

VOC vials received w/o headspace: bubble < 6mm: Yes No (N/A)